MODERN TREATMENT
OF
GONOCOCCAL INFECTION

BY
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TO

Lt. Col. K. K. Chatterji, I T.F., F.R.C.S I

Hony. Colonel, Calcutta University Training Corps,

Professor of Surgery, Carmichael Medical College, Calcutta,

A pioneer in the fight against venereal diseases in India,

Author of "Syphilis with special reference

to the tropics,"

this little volume is respectfully dedicated.

FOREWORD

It is distressing to feel that gonorrhœa has not attracted the attention of the public or the profession it deserves in this country. Sufferers from this infection naturally call for advice in the initial stages of the disease, in a large percentage of cases, the subsidence of early signs of the disease is held tantamount to a cure. General Sir John Megaw's statistics refer to these cases. The complications and sequelæ either due to local extension, metastasis or latency are conditions which are not often traced to gonococcal infection. If these are taken into account the percentage would rise much higher.

Dr Bose has justly referred to these facts. It is venturesome on his part and I appreciate it. He has studied the best authors on the subject and has taken great pains in summing up the result of his studies and his own experience

I have read this little book with much interest and it has been a pleasure for me to feel that he is one of those in the profession who have taken up this subject in earnest It gives me great pleasure to write a foreword for the work of one of my former pupils for whom I have always held a great regard.

K. K. Chatterji.

* "There is probably no other disease known to medical science that has caused as much suffering and sorrow throughout the civilised world as has gonorrhœa."

† According to Sir John Megaw, out of total population of 353 millions in India number of gonorrhœa patients is 7½ millions, Syphilis 5½ millions, Tuberculosis 2 ⅙ millions and Leprosy ¾ million; or in other words, total number of venereal cases (Syphilis and Gonorrhœa) is 13 millions which is six times that of Tuberculosis and nearly sixteen times that of Leprosy.

Although intense research work is going on in western countries, in India

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* "Gonorrhœa in women" by Charles C Norris, M.D.

† "An enquiry into certain public health aspects of village life in India" by Sir John Megaw, Director General of Indian Medical Service

publicly unspeakable and medically outcast gonorrhœa has been limping through years as nobody's child.

Urologists of reputation pay more attention to the excision of the prostate and amputation of penis than to the treatment of their most common infection, gonorrhœa. It has been neglected and often dismissed as a trivial and unpleasant complaint that did not merit attention.

The general practitioners on the other hand do not take any special interest in venereal diseases. A certain uncertainty appears to exist among them so far as the radical cure of gonorrhœa is concerned. They have dropped it into background as incurable.

So, in the first chapter I have tried to remove this wrong impression from the minds of our medical men by quoting the statements of authorities on the subject and report of cases in my clinic.

Not many years ago, our only methods of treatment of this disease were urethral irrigation, oral medica-

tion and vaccine injection, but the work of a number of electro-therapists in the field of gonorrhœa has produced startling improvements and has modified our old methods in many important particulars. I am firmly convinced of the absolute efficacy of these new methods and their superiority over the old ones. So, several chapters have been devoted to describe these latest electro-surgical measures which consist of urethroscopy, diathermy, ionization and also other important methods, e.g. dilatation, massage, vasotomy and meatotomy. It has been my aim to lay stress upon those methods only which are actually reliable and which really cure gonorrhœa.

In the next few chapters have been discussed the different aspects of the old methods.

By way of conclusion I have tried to give in a nutshell an idea of what new treatment we should actually follow in different stages of gonorrhœa and its complications. Impotency being one of

the worst complications of gonorrhœa has been described in a separate chapter.

The last chapter deals with gonorrhœa of females. It is very important from the standpoint that no treatment is complete unless the partner is cured of this filthy disease at the same time.

It will be seen that this small book contains informations about the new therapeutic weapons and the precise methods of their most effective application. It will especially be useful to busy practitioners who have no time to keep themselves in touch with the latest developments of each branch of the vast medical science.

I have never hesitated to step out of the beaten path and have given interpretations in the light of my own experience with the disease.

I shall think myself well repaid if these pages can do even a little towards awakening the medical men from their prolonged lethargy regarding this neglected disease.

It is a great pleasure to acknowledge my debt and express my sincere thanks to Dr. C. C. Bose, Pathologist, Carmichæl Medical College, Calcutta for the great interest shown by him in going through the manuscript of the whole book and in giving his valuable suggestions on various important points; and to my friend Mr. Suresh Chandra Roy for the arduous task of proof reading.

It is with sincere appreciation that I acknowledge my indebtedness to Dr. Kumar Narendra Nath Law, F.R.S., Ph.D. for his continued interest in the preparation of the book and without whose generosity it would have been impossible for me to publish the book.

I am glad to have the opportunity of acknowledging the valuable help I have received from numerous works on venereal diseases by renowned urologists. I have quoted their statements in their own language as far as possible. I express my hearty thanks to Dr. Georges Luys, Dr A.L. Wolbarst, Dr. P.

S. Pelouze, Dr. W. J. Robinson, International General Electric Company and Oxford Medical Publication for the illustrations which have been taken from their books and literatures with certain modifications in some cases.

Sachin Bose

Calcutta, July 1936
205, Cornwallis Street

CONTENTS

CHAPTER I

MODERN TREATMENT OF GONOCOCCAL INFECTION

CAN GONORRHOEA BE CURED ?

CAN GONORRHOEA BE CURED ?

Dr. George Luys (Late Chief Medical Officer of the Urological Centre, at the Military Hospital, Versailles) says.

* "Modern science has made such conquests that one can say without exaggerating that there is no inflammation of the urethra which cannot be cured completely by appropriate treatment."

"Our therapy is now-a-days so perfect that it is not permissible for a medical man to allow a case of gonorrhœal urethritis to go on without curing it."

Arthus Foester (Late Resident Medical Officer, London Lock Hospital) writes:

† "In case of gonorrhœa in particular our medical and surgical measures are excellent and practically guarantee a cure. They appear, however, to be inadequately known."

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* P X Author's Preface, "Gonorrhœa and its complication by Dr George Luys

† P VIII Translator's Preface, "Gonorrhœa and its Complication" by A Foester, London Lock Hospital

Dr. ABR.L. Wolbarst M.D.(Director of Urologic Clinics. Beth Israel Hospital, U.S A.) states:

* "Gonorrhœa can be cured notwithstanding the widespread opinion that such is not the case. Gonorrhœa can be cured and is being cured every day, otherwise we should have many more chronic cases in men and far more gonorrhœa in women than we have Experience covering hundred of years has shown that gonorrhœa can be cured completely and sometimes within an incredibly short time"

From the statements of these eminent specialists it is evident that the old maxim "once gonorrhœa always gonorrhœa" is going to be changed by the latest developments of medical science

Dr. David Lees, F.R.C.S. (Surgeon in charge of venereal diseases, The Royal Infirmary Edinburgh) writes:

† "Not many years ago our standbys were glass syringes, sulphate of zinc,

* P 26, "Gonococcal Infection in the male" by Dr. Wolbarst.

† P VII Introductory, Practical Methods in the Diagnosis and Treatment of Venereal Diseases by David Lees

permanganate of potash, mercury, and iodide of potassium. Vast changes in methods of treatment and diagnosis have been introduced."

The new therapy which has brought a revolution in the field of gonorrhœa and has encouraged the urologists of world wide reputation to assert with all their emphasis that gonorrhœa can be cured is mainly based on the following methods of treatment:

(1) Urethroscopy—Electrolysis and Electric Cautery.
(2) Diathermy.
(3) Urethral Ionization.
(4) Dilatation by Kollmann's Dilator and Follow-up Catheter for stricture.
(5) Meatotomy.
(6) Prostatic massage.
(7) Vasotomy.

Hitherto the available facts have been obscured by countless misinterpretations and consequently treatment has blundered along for years. It is high time that it should find the sound and

well defined course that is open to it. The rationale and technique of these methods of treatment are the result of elaborate research work and they require explanation and demonstration before the medical profession.

So, leaving the theory aside I shall now give practical demonstration of the efficacy of these methods applied on patients treated in my clinic. From the result of these cases, I have not the least hesitation to assert that there is no exaggeration in the remarks of those renowned urologists. Before giving any idea about the cured cases of my clinic, it is first necessary to fix a "standard of cure."

Standard of Cure

It is a fact that after a few weeks of treatment almost all the troublesome symptoms subside. There is neither any burning in the urethra nor any discharge and the patient thinks himself to be completely cured. But a doctor cannot declare his patient cured unless repeated

microscopic examinations of urethral discharge collected by prostatic massage after provocative vaccine injection show no bacteria and no pus cells in appreciable number for several months after the treatment has been stopped This principle is tried to be followed regularly in every case of gonorrhœa under my treatment.

According to Dr Wolbarst,* "the test of cure is not dependant on the presence of gonococci alone. The presence of pus cells in the genital secretions in appreciable numbers—more than four or five cells in a $\frac{1}{6}$ objective field—is sufficient justification for the suspicion that a focus of infection persists somewhere in the body; even though no bacterial oganisms have been found, the patient must be considered potentially infectious"

* P. 262 "Gonococcal Infection in the male" 2nd Edition by Dr Wolbarst

RECORD OF A FEW CURED CASES OF GONORRHŒA,

...	Case I
Age	28 Years
Symptoms at the beginning of treatment ..	1 Urination every ½ an hour 2. Severe pain at the root of the penis during urination. 3. Pus soiling cloth.
Diagnosis	Acute Posterior Urethritis.
Treatment stopped on .	21st October, 1934.
*Microscopic finding. Before treatment	Pus cells—85 per field.
1st Examination ... After treatment ..	... .
2nd Examination .. After treatment ...	21st January, 1936. *After one year and three months.* Pus cells—Nil in 34 fields.

*Eye piece no. 1 and oil immersion lens. objective 1/12

TREATED IN MY CLINIC

Case II	Case III
20 Years	25 Years
1. Severe burning during urination 2. Profuse pus soiling cloth	1. Frequent night pollution. 2 Arthritis in carpal joints. 3. Ring finger of right hand fixed.
Acute Anterior Urethritis.	Chronic Prostato-Vesiculitis.
December, 1934.	January, 1934.
90 per field	27 per field.
10th July, 1935 *After seven months.* Pus cells—Nil in 2 slides	23rd June, 1934 *After six months.* Nil in 2 slides.
15th February, 1936. *After one year and two months* Pus cells—2 in 37 fields.	22nd September, 1934. *After eight months.* Nil in 25 fields.

RECORD OF A FEW CURED CASES OF GONORRHŒA

...	Case IV
Age	22 Years
Symptoms at the beginning of treatment ...	1 Slight burning. 2 Pus on squeezing.
Diagnosis ...	Subacute Urethritis.
Treatment stopped on ..	23rd July.
*Microscopic finding. Before treatment .	Pus cells—44 per field
1st Examination After treatment	On 10th November. *After three months.* Pus cells—Nil in 33 fields.
2nd Examination ... After treatment	On 11th December. *After four months* Pus cells—Nil in 20 fields.

*Eye piece no 1 and oil immersion lens objective 1/12

TREATED IN MY CLINIC

Case V	Case VI
35 Years	26 Years
1. Occasional burning. 2. Pain in waist, neck, and wrist	1. Burning during urination. 2. Pus on squeezing
Ch Prostato-Vesiculitis.	Subacute Anterio-Posterior Urethritis
28th August.	10th November.
17 per field	100 per field
10th January. *After five months* Nil in 29 fields	16th November 3 in 46 fields
On 15th May. *After nine months* Pus cells—Nil in 42 fields.	On 30th March *After three months.* Nil in 39 fields.

The microscopic examination was made in every case of my clinic after provocative vaccine injection. From the report of these cases, it is proved conclusively that gonorrhœa can be cured and is being cured completely.

CHAPTER II

MODERN TREATMENT OF GONOCOCCAL INFECTION

URETHROSCOPY

"The urethroscope bears the same relation to the urethra as the stethoscope does to the heart, the x-ray to the fracture, the laryngoscope to larynx and opthalmoscope to the eye."

"For diagnostic purposes it gives infinitely more accurate information than any other method of examination. For therapeutic purposes it gives the means for treating the lesion with astonishing precision and efficiency. It is indispensable in the treatment of chronic urethritis."

Several cases of most obstinate type of chronic gonorrhœa treated in my clinic, mainly by urethroscopy are noted below This will prove definitely the utility of urethroscopy.

P 119, Gonorrhœa and its complication *Third Edition by George Luys

CASES SHOWING REMARKABLE EFFECT OF

	Case I
Past History	Patient had been suffering for the last 3 years. Slight discharge and urethral irritation continuing
Treatment started on	8th March, 1935
Urethroscopy done on ...	19th March, 1935 14 infected lacunæ and ulcerated spots were detected and treated by Electrolysis
Microscopic finding — At the beginning of treatment ...	Pus cells—5 per field. Examined 37 fields
1st Examination ...	On 31st March.
After Cauterization . .	Twelve days after Urethroscopy.
...	Number of pus cells—25 in 37 fields, less than 1 per field
2nd Examination ...	On 14th April.
After Cauterization . .	After one month
...	Pus cells—Nil in 39 fields
3rd Examination .	On 9th May.
After Cauterization . .	After nearly one month and a half.
...	Pus cells—Nil in 41 fields.
Remarks ...	*Trouble of the last 3 years was stopped by one Operative Urethroscopy*

CAUTERIZATION THROUGH URETHROSCOPY

Case II	Case III
Patient aged 50 years. Morning drop and slight burning on urination persisted for the last 7 years.	Patient 40 years old. He gave history of slight discharge on squeezing for the last 18 years.
4th February, 1935.	3rd March, 1935
18th February. 5 small infected areas, within 1" of external meatus were detected and cauterized by electric cautery.	3rd March and 9th April. Anterior Urethra on the 1st day, 12 ulcerated areas—electrolysed. Posterior Urethra on the 2nd day
9 per field. Examined 21 fields	6 per field Examined 37 fields.
...	...
After one week—morning drop stopped altogether and it did not recur.	2nd May—nearly one month after 2nd urethroscopy.
...	Pus cells—22 in 47 fields—less than 1 per field
4th March.	6th May.
After a fortnight.	...
Pus cells—13 in 36 fields,—less than ½ per field	Pus cells—Nil in 24 fields.
...	On 12th May
...	...
..	Pus cells—2 in 38 fields.
Thus the complaint of the last 7 years was removed by one cauterization	*Symptoms of last 18 years disappeared after two electrolysis through urethroscope.*

CASES SHOWING REMARKABLE EFFECT OF CAUTERIZATION THROUGH URETHROSCOPY

	Case IV
Past History	Patient aged 25 years. He was under my treatment for the last 10 months. Irrigations, Injections, Dilatations—all failed to stop the morning drop.
Treatment started on ..	19th August, 1934.
Urethroscopy done on ..	2nd July, 1935. A few infected lacunæ just behind external meatus—detected and electrolysed.
Microscopic finding — At the beginning of treatment	Pus cells—98 per field. Examined 2 slides
1st Examination ...	28th September, 1935.
After Cauterization ...	After three months.
	Pus cells—6 in 38 fields in 2 slides.
2nd Examination ...	15th February, 1936.
After Cauterization ...	After eight months of Urethroscopy. Pus cells—2 in 37 fields.
3rd Examination ...	...
After Cauterization ...	...
Remarks	*Struggle with the patient for 10 months ended with one urethroscopy.*

The utility of urethroscope becomes evident, if we consider gonorrhœal urethritis from its pathological standpoint.

Anterior Urethra:

The wall of the anterior urethra has numerous small recesses or side pockets known as lacunæ of Morgagni and glands of Littré. These glands have tortuous ducts leading into the urethral canal by minute openings It is mainly the infection of these side pockets which drag on the disease to its chronic stage. In these glands the latent, attenuated gonococci and secondary organisms are particularly apt to be found awaiting a stimulus to stir up a new infection. This stimulation comes in form of sexual or alcoholic excess. From these glands there may occasionally come a purulent discharge which may constitute the only symptom. Besides these side pockets, in some areas there may be untreated patches of congestion and granulation.

Irrigations for months, injections in hundreds and any number of dilatations

cannot drive out these germs from their well protected abodes. The only possible means to kill these organisms in their dens at this stage is cauterization through urethroscope.

Posterior Urethra·

By means of an improved type of urethroscope normal verumontanum is seen as a distinct projection from the floor of the urethra into the deep urinary canal.

The pathological changes in the verumontanum are exceedingly numerous. We find on it—inflammation, congestion, ulceration, papilloma, cyst, deformation etc.

It is astonishing to find that the large number of intractable cases owe their chronicity to a chronic inflammation of the verumontanum and its adjacent structures. Cauterization through posterior urethroscope constitutes the most useful and successful therapy at our command.

Fig. 1

Polypus arising from the upper aspect of the Verumontanum, as seen with the Urethroscope

Fig 2

Below, an elevation, the posterior end of the verumontanum, is visible Above one notices, instead of a well-folded and regular mucous surface a number of small abscesses and muco-purulent masses in which the organisms find shelter for a considerable time Lesions of this kind are relatively common in chronic gonorrhœa, and cannot be diagnosed by any other method than urethroscope

To face page 20

Description of Urethroscope:

It consists of the following parts:

(1) Several hollow tubes of different sizes, called "urethroscopic tubes."

(2) Piston-like solid tubes, called "obturators." They are inserted into the urethroscopic tubes to avoid the urethra being damaged by the projecting end of the tubes.

(3) Other part has 3 slender long hollow tubes soldered together:—the 1st tube carries a powerful but very small electric bulb at its distal end and the proximal end is connected by means of an insulated wire to the machine—

—to the 2nd tube is fitted the lens to magnify the ulcerated areas and the infected glands—

—through the 3rd tube passes an insulated probe to carry the electric current for cauterization or electrolysis when connected to cautery or galvanic plug of the machine.

Technique

After passing the urethroscopic tube into the urethra, the obturator is drawn out. The handle carrying those slender tubes is fitted to the mouth of the urethroscopic tube When the machine is switched on—the urethra is lighted and the examination of the canal is made by slowly withdrawing the tube The minute pathological changes are thus made visible.

* "When at rest the walls of the urethra lie in contact with one another in the form of longitudinal folds, if a tube is introduced, the folds assume a radiate arrangement," in the form of a fossette.

"Under normal conditions *Littré's glands* cannot be seen but when they become inflamed they show small, round, dark red depressions about as large as the head of a pin."

P 20 Casper Text Book of Genito-Urinary Diseases, English translation by C. W. Bonney, Philadelphia

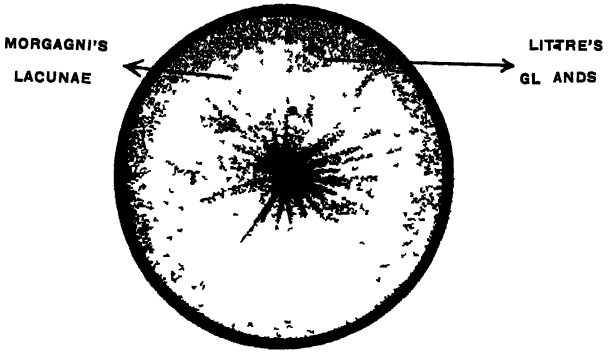

Fig 3

Chronic inflammation of Morgagni's Lacunæ and of Littre's Glands
The picture is typical and often observable Around each focus is a characteristic inflammatory halo

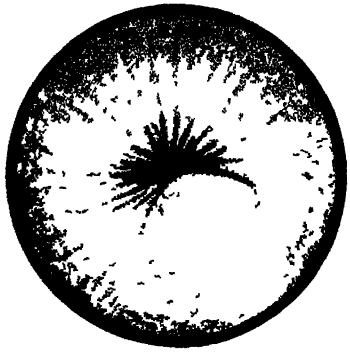

Fig 4.

Chronic inflammation of a Lacunae of Morgagni
Its complete disappearance could only be obtained by means of several direct applications with the electrolytic needle

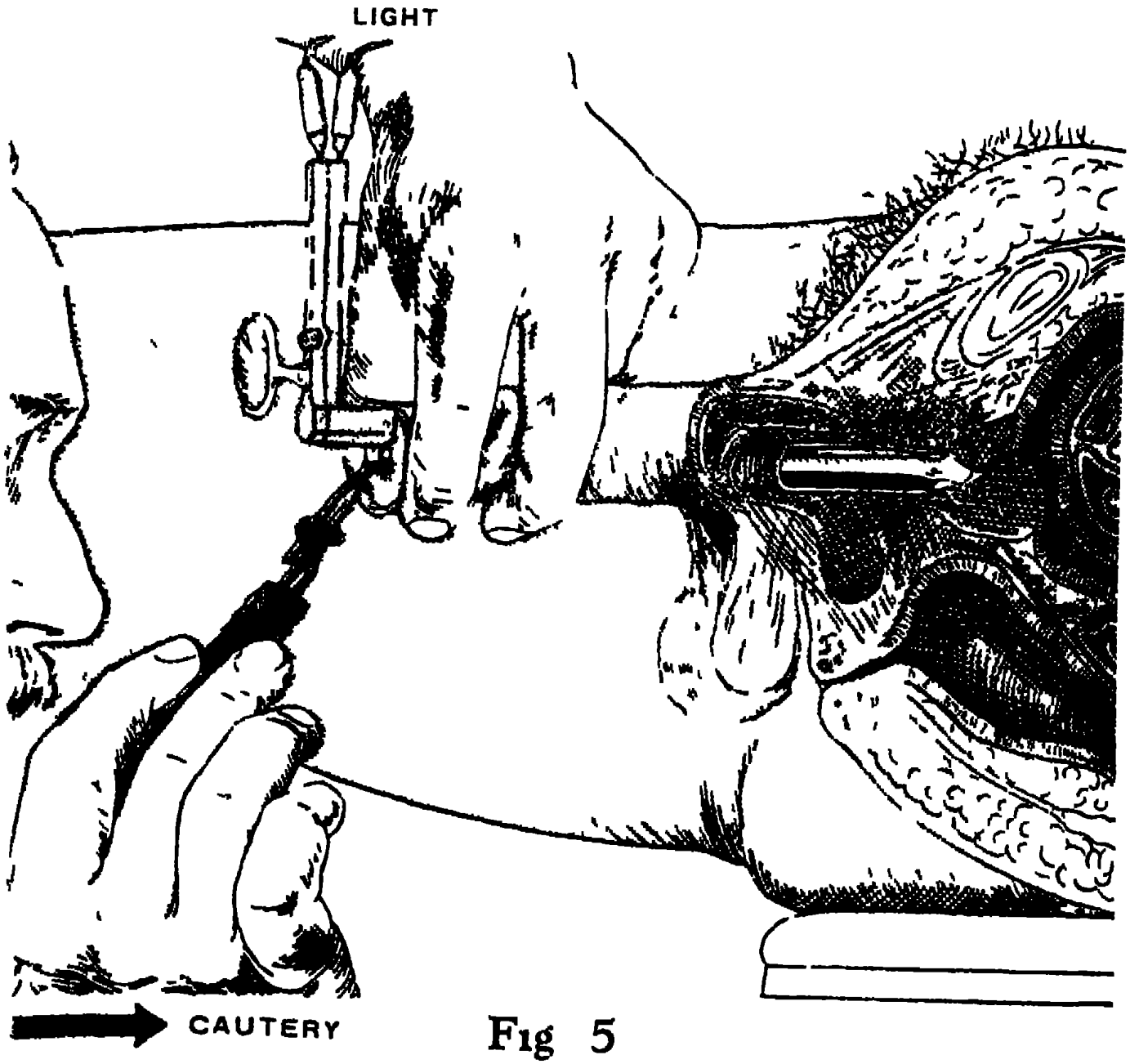

Fig 5

Cauterization through Urethroscope

To face P 23

"The *lacunae of Morgagni*, from six to twelve in number are observed as long slit-like openings with everted, deep red edges. When pressed upon by the tube, they gape so that the point of a small probe may be pushed into them."

On account of diffuse infiltration of the submucous tissue we also find sharply defined areas of *hyperemia* and *granular patches*.

Under direct vision, these infected Littré's glands, lacunae Morgagni, and patches of congestion and granulation are touched with the insulated probe of the urethroscope carrying the electric current and cauterised.

There are two methods of cauterization:

(1) Electrolysis.
(2) Electric cautery.

Electrolysis:

It means liquefaction and destruction of tissue by galvanic current. The insulated probe through the urethros-

copic tube is connected to the negative pole of the machine and the positive pole connected to a dispersing electrode placed under the buttock or any part of the body.

When the machine is started and the end of the probe is touched to the infected lacunae and ulcerated spots, the current at once brings about tissue-liquefaction. The effect may be seen by the effervescence of Hydrogen bubbles around the probe point.

Electric Cautery

Electric cautery means destruction of tissue by electric burn. It is performed by another insulated probe, having a small coil of wire at its end. When the switch is turned on—the wire glows, becomes red hot and burns the infected parts of the urethra touched by it through the urethroscopic tube.

CHAPTER III

MODERN TREATMENT OF GONOCOCCAL INFECTION

DIATHERMY

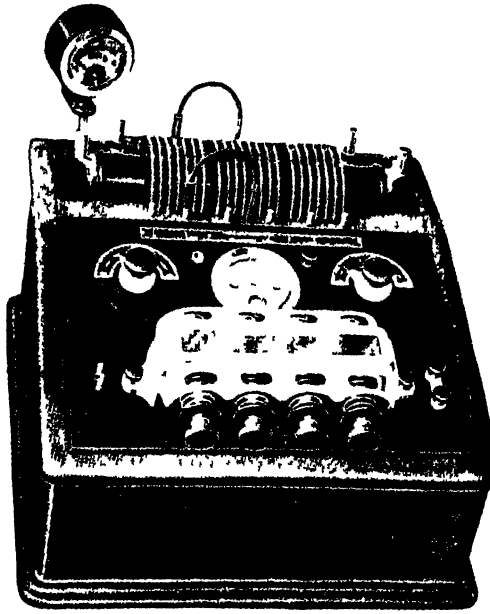

Fig 6

Diathermy Machine

To face P 27

DIATHERMY

Elkin P. Cumberbatch (Medical Officer-in-charge Electrical Department St. Bartholomew's Hospital) writes:

"Gonococcal Prostatitis and Vesiculitis—Diathermy is of great value in the treatment of these diseases. Its therapeutic powers are well seen in the effects which it can produce in cases which have resisted treatment by other methods. It is in the treatment of cases of this kind that the author has obtained most experience"

"Additional evidence of value of diathermy in the treatment of gonococcal infection of the prostate and vesicles is seen in cases in which there is a complicating arthritis or fibrositis."

P 168 Diathermy by Elkin P. Cumberbatch.

Daniel N. Eisendrath, M.D. Consulting Urologist to the American Hospital, Paris, France, says:

* "Diathermy has proven of considerable benefit in chronic prostato-vesiculitis and has given relief in many cases where routine treatment helped but little."

According to Richard Kovács, M.D. Clinical Professor and Director of Physical Therapy, Poly-clinic Medical School and Hospital, New York:

† "Diathermy having been proven to be of specific value in checking the growth of gonococci at temperatures a little above normal, the rationale of its use for the combating of a common infection such as gonorrhœal urethritis is obvious."

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*P 367 Text Book of Urology by Daniel N Eisendrath and Henry C Rolnick

† P 586 Electrotherapy and Light Therapy by Richard Kovács.

In the "Text Book of Physical Therapy" by Heinrich F. Wolf, M.D. Chief of Department of Physical Therapy, Mt. Sinai Hospital and Dispensary, New York we find:

* "In gonorrhœal prostatitis diathermy is of great value. It must be given to the point of tolerance to increase the temperature of the tissue within safe limits to a point where the gonococcus is destroyed. The higher the temperature, the better."

In my clinic, I have observed excellent result also in cases of acute posterior urethritis with prostatitis and vesiculitis. Symptoms of frequent urination—every ten or fifteen minutes, accompanied by bad urgency, unbearable pain at the root of the penis at each time of urination, discharge of blood with pus—are relieved to a great extent by one or two applications of diathermy. In this case, action of diathermy is very satisfactory.

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* P 204 Text Book of Physical Therapy by Heinrich F. Wolf, M D.

How Diathermy works

The power of heat to accelerate the circulation and to aid the tissues in their effort to free themselves from infection, to relieve pain and spasm is an established fact of medical science.

Besides this indirect action, heat also acts directly on the gonococcus and kills them.

If a fomentation or hot water bag is applied on the perineum or lower abdomen, the passage of heat below the skin is impeded, if not entirely prevented. Blood passing through the capillaries of subepithelial layer conveys the heat away from the part to different organs of the body; heat never reaches prostate and seminal vesicles which are placed deep in the pelvic cavity.

If two electrodes—one placed on the penis folded on the abdomen and another behind the buttock—are connected with two poles of diathermy machine, a current of *special* kind will flow between the two poles.

Fig 7

Double plate method Diathermy to urethra prostate and seminal vesicles

To face P 30

Ordinary currents, galvanic or faradic, cannot be used for heating purpose, because they stimulate the excitable tissues of the body and cause painful contraction of muscles.

The current which is produced by diathermy machine alternates at an exceedingly rapid rate. Such current is commonly known as "High Frequency Current." This current does not stimulate the excitable tissues but produces heat in the organs through which it passes.

On account of its remarkable efficacy, diathermy is gradually occupying a very important place in the treatment of gonorrhœa and is being highly advocated by the authorities on the subject.

Diathermy in Arthritis:

In Arthritis,* "diathermy has given unusually fine result. It is distinctly sedative to the inflamed joints. Some of its advocates speak of it as a specific in gonorrhœal arthritis because of the

* P. 135. Gonococcal Infection in male by Wolbarst.

inability of the organisms in the joint to survive the heat generated by the electric current."

"While the gonococcus may be destroyed in the joint, the original focus in the prostate and seminal vesicles nevertheless must be eradicated before a complete cure of the inflamed joint is to be hoped for."

Diathermy in gonorrhœa of females.

* "During the past five years the treatment of women's diseases by diathermy has performed an increasing part of work of electrical department of St. Bartholomew's Hospital and the value of the treatment has been ascertained in cases which had resisted other forms of therapy."

Urethra, cervical canal and fallopian tubes are the parts mainly affected in cases of females. Each part requires special attention and has special technique of diathermic applications.

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* P. 147 Diathermy by Cumberbatch.

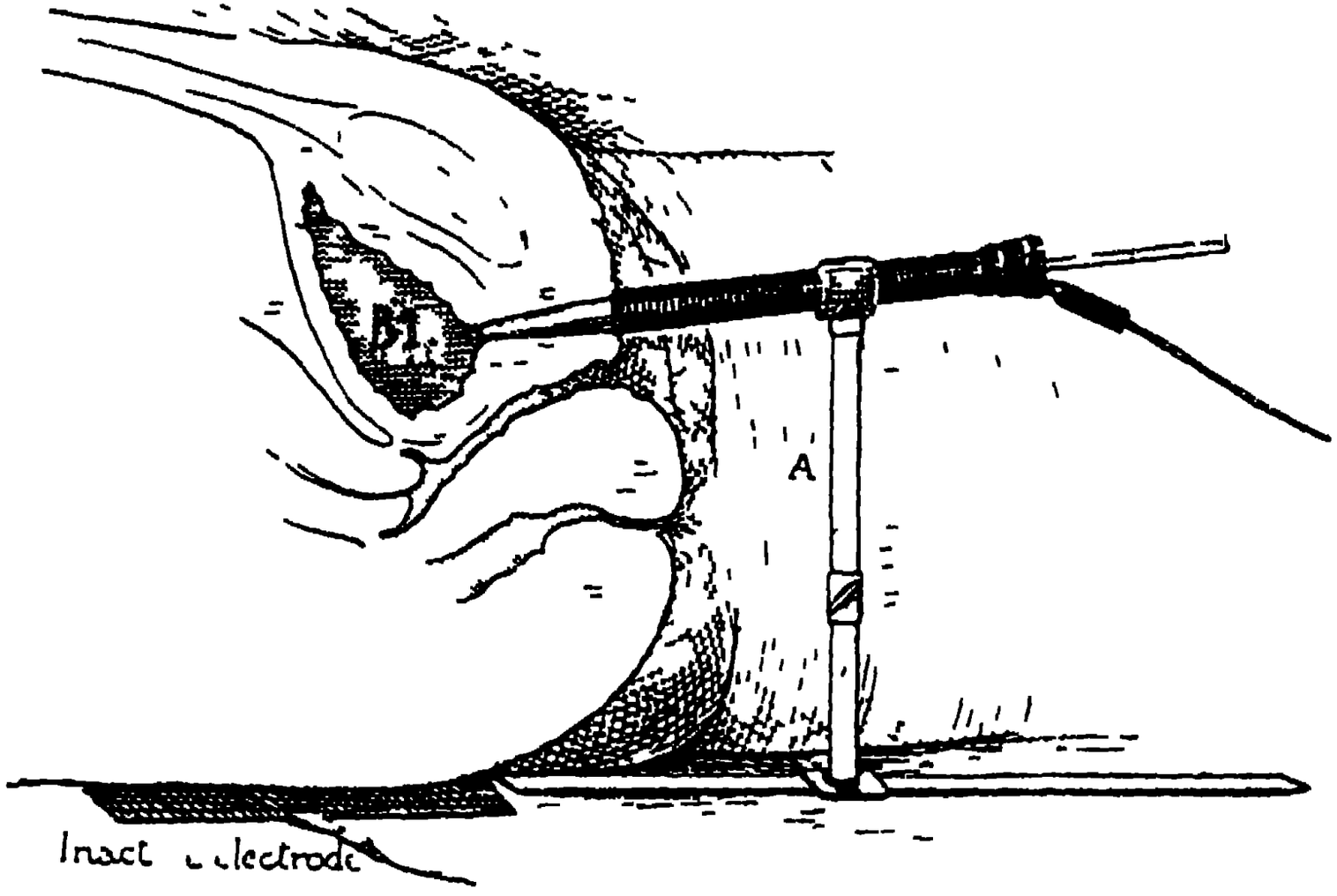

Fig 8

Diathermy to Female Urethra

to face P 33

Urethral Diathermy:

The active electrode consists of a metallic rod, the distal portion of which is inserted into the female urethra for an inch and a half. The rest of the rod is insulated by an ebonite sheath, the proximal end of which is connected with one pole of the machine.

The other electrode consists of a belt of a special make, which is fastened around the lower abdomen and connected with the other pole of the machine. When the machine is started, by means of diathermic current, heat is generated between the two electrodes. The active electrode being the smaller localizes the heat directly around the urethra.

Fallopian Tube·

In case of infection of fallopian tubes—double plate method is the best. One plate is placed above the affected area on the abdomen and another plate of the same size beneath the buttock, correspondingly opposite the first plate. The current passes between the two

plates and heat all the intervening organs.

Cervical Diathermy:

The dispersing electrode, the belt is applied in the same way as in urethral application of Diathermy.

* "The active electrode consists of a vulcanite stem, terminating in a rounded metal end. This end is in electrical connection with a terminal attached to the other end. This electrode should contain a thermometer with its bulb in the metal end." This electrode is passed into the vagina so that its metal end rests against the cervix. It is connected with one pole of the machine.

"The current is gradually increased until the thermometer indicates 106-108° F."

In all other parts of the body, the intensity of the current is regulated by the toleration of the heat by the patient but in case of cervix, a thermometer is

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P 321. Essentials of Medical Electricity by Cumberbatch

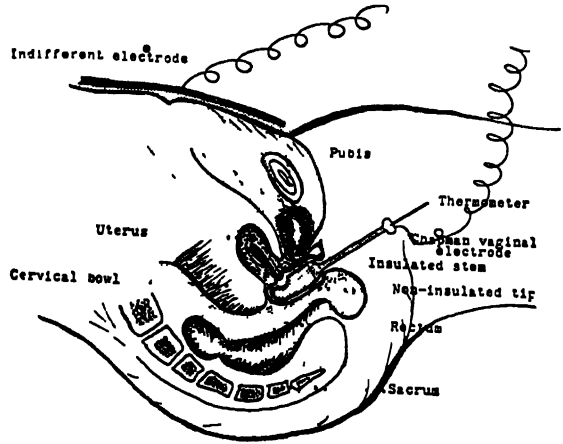

Fig 9

Diathermy to Cervix of Uterus

Fig 10

Cervical Electrode

To face P 34

Fig 11

Electro-coagulation of cervical canal
Kimble-Luros electrode

Fig 12

Electro-coagulation of Erosion of Cervix

To face P 35

Figs 6-12 inserted by kind permission of Messrs General Electric X-Ray Corporation

essential because cervix is insensitive to heat and pain sensation. Thus there is every chance of going beyond the limit and causing damage to the part

ELECTRO-COAGULATION

Cervix.

There is another method of application of diathermy to the cervix which is called *Surgical Diathermy or Electro-coagulation*. In this method, the current generates heat as in Medical Diathermy but the heat is raised to a degree high enough to *coagulate* the tissue protein and boil the fluid within it. The active electrode is inserted into the cervix and a large dispersing electrode is attached to the other terminal of the machine. When switch is turned on, the diseased mucous membrane of the cervix becomes coagulated and forms a slough, which separates after two to three weeks. A soft scar is left, which scarcely shrinks at all and no adhesions are formed. Complications are uncommon

Kimble-Jaros has devised a new type of cervical electrode, as shown in

CHAPTER IV

MODERN TREATMENT OF GONOCOCCAL INFECTION

IONIZATION

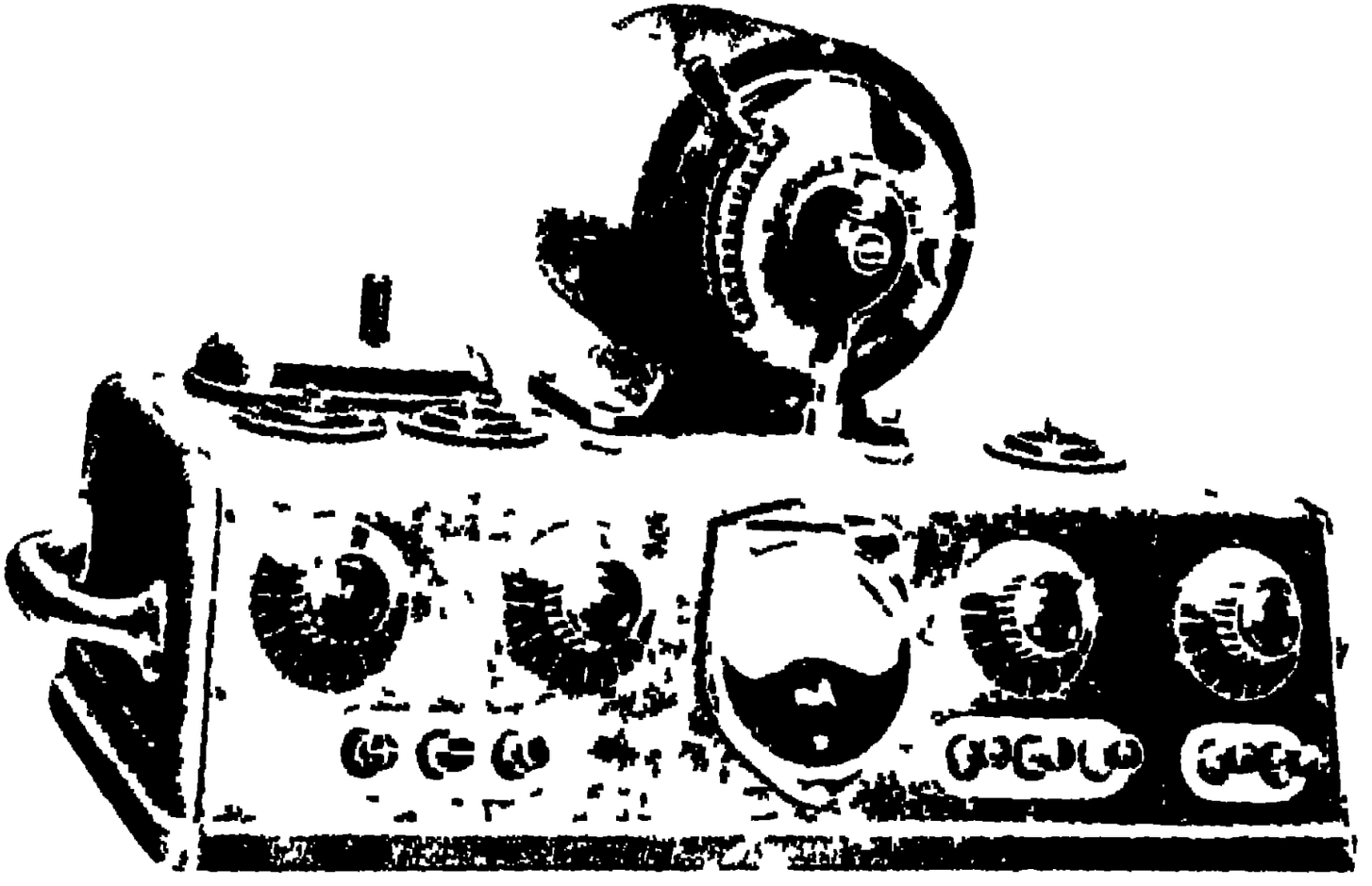

Fig 13

Machine to generate Galvanic and Faradic Current

Page 39

IONIZATION

What is Ionization?

By "Ionization" we mean the forcible penetration of antiseptic "ions" into the tissue by the effect of galvanic current.

Technique of Ionization in Gonorrhœal Urethritis

The caustic ions of heavy metals, silver, zinc etc., are employed in the treatment of gonorrhœal urethritis.

A silver or a zinc rod is passed into the urethra, a straight one for the anterior and a curved one for the posterior The proximal end of the sound is connected by means of an insulated wire with the positive pole of the machine. The negative one is attached to a plate, surrounded by a lint and placed on the palm of the hand of the patient

How Ionization works:

When the current is passed through the rod, silver or zinc in "ionic" form

is detached from the electrode and dragged deep into the tissue.

Any organism within the urethral mucous membrane that is reached by silver or zinc ions is destroyed.

Besides this direct action, the ions also act indirectly. The silver ions unite with the cells of the epithelium and form a layer of silver or zinc albuminate. In this way the canal of the urethra is provided with a sterile lining which protects the underlying parts from reinfection.

This method is far superior to ordinary irrigation by acriflavine and potassium permanganate, or introduction of silver bougies or instillation of argyrol or any other silver preparation. They all act very superficially and cannot penetrate into the mucous membrane to any depth.

Effect of Ionization in gonorrhœa

Effects of Ionization in different stages of gonorrhœal urethritis in males

and endocervicítis ın case of females, are given below.

Acute Anterıor Urethritis:

Excellent result has been obtained by thïs method ın my clınıc in early stage of gonorrhœa. The discharge is totally stopped by seven or eight applications of sılver ionizatıon and permanent effect can be derived ıf this is followed by a few dilatations by sound or Kollmann's dılator at weekly intervals I am glad to announce that by this new method, in acute stage the usual period of treatment has been reduced by half or less than that

Chronic Urethritis

Dr Luys applied the Ionizatıon in case of chronic urethritis with success. A few lines from hıs book are quoted below.

* "In two cases suffering from rebellious dıscharges which had resisted

* P 385. Gonorrhoea and ıts Complıcatıon, 3rd Edıtıon by George Luys

far pushed dilatation I obtained a complete cure. In both, the lesion was situated in the penile urethra and two or three applications had the desired effect."

Ionization was tried in cases of chronic urethritis also in my clinic, but very satisfactory effect was not found in every case. In chronic cases nothing is better than operative urethroscopy

Stricture :

* "The negative pole of the galvanic current has been used successfully for many years for the dissolution of scar tissue in the urethra."

"The technique originally introduced by Newman is to determine first the size and location of the stricture by the use of sounds. An olive tip two sizes larger than the stricture is placed on an insulated handle and inserted into the

* P 587 Electrotherapy and Light Therapy by Dr Kovacs

urethra so that it just engages the stricture. The intraurethral electrode is connected to the negative pole of a galvanic source and a wet-pad electrode placed over the abdomen or under the buttocks is connected to the positive pole. The current flow is kept up until the olive tip slips of its own weight past the obstruction. The treatment is repeated with olives of increasing size, until a No 28 French sound can be easily passed."

"Cumberbatch also recommends negative galvanism as an alternative to simple dilatation; one of his patients stated that he had much longer periods of freedom from obstruction when the electrical methods were employed "

Endocervicitis

We have obtained very satisfactory result by ionization method in case of females. It is perhaps the only method to disinfect the cervical canal in most obstinate types of gonorrhœal affection. When douching, plugging, application of mercurochrome or iodized phenol into

the cervical canal and such other ordinary methods fail, "ionization" must be given a fair trial and there is every chance of success.

Technique of Cervical Ionization:

The active electrode is a long zinc or silver rod, slightly curved at the distal end which is rounded. The proximal end has a hole to which is attached one pole of the machine. The other electrode is the belt around the waist as in case of cervical diathermy.

* "The patient lies on her back. A speculum is passed *per vaginam* and the cervix is brought into view. The free end of the rod is passed into the cervical canal as far as the internal os The other end is supported on a stand."

The treatment is generally started by connecting the zinc or silver rod to the negative pole of the source of the current. "Twenty milliamperes are allowed to flow for twenty minutes.

* Pp 152 & 153 Essentials of Medical Electricity by Cumberbatch

Three or four days later the treatment is repeated. It may be necessary to make a third application after the same interval to secure free drainage." The discharge from the external os increases in amount and becomes more fluid and less coloured. * "In this way an effective drainage from within is established. It is of special value in cases of cervicitis when the discharge is slow, thick, and adherent."

After the 3rd application, the rod electrode is then connected to the positive pole of the source of the current and zinc or silver ions are introduced into the mucous membrane of the cervix.

Three or four days later, the cervix is examined. † "If signs of inflammation are still present, the active electrode is connected to the negative pole and a current of twenty milliamperes passed for twenty minutes. This has the effect

* P 152 Essentials of Medical Electricity by Cumberbatch

† P 153 Essentials of Medical Electricity by Cumberbatch

of dissolving the layer of zinc or silver albuminate formed by the preceding treatment and re-establishing drainage. After three or four days zinc or silver ions are again introduced. This method of treatment, in which the active electrode is made alternately negative and positive, is continued until the cervix regains its normal appearance and size, and the fluid emerging from the os is clear."

In my clinic, with the help of a trained nurse, I apply cervical ionization alternately with urethral and cervical diathermy each twice a week This has given very satisfactory result in many chronic cases.

CHAPTER V

MODERN TREATMENT OF GONOCOCCAL INFECTION

DILATATION

Fig 14

LeFort Follow-up Sound

To face P 19

Follow-up Catheter

At times, one encounters cases of urethral stricture with greatly distended bladders in which ordinary types of catheters fail.

* "The *LeFort filiform* is extremely useful in these cases. It consists of a filiform threaded at one end, which can be attached to a metal or woven catheter of varying size with a corresponding thread at its curved and rounded end."

"The filiform having passed through the stricture into the bladder, the metal or flexible catheter is screwed on and both the filiform and catheter following it are pushed into the bladder, thus dilating the stricture. After a few moments the catheter is withdrawn, a larger size catheter is attached to the filiform and the bladder irrigated, after which the filiform is withdrawn and the solution

* P. 184 "Gonococcal Infection in the male" by Wolbarst.

is voided per urethram. In this way gradual dilatation is continued up to the point at which a fairly large sound can be introduced without the use of a filiform."

Kollmann's Dilator

When the stricture is sufficiently dilated, the process is completed by a few applications of *Kollmann's Dilator*

There are mainly two varieties of this form of dilators—(a) the straight, and (b) the curved patterns.

* "Both of these patterns consist primarily of a centrally placed stem or shaft, ending in a single bulbous distal extremity. Circumferentially disposed around the shaft there are three or four blades. By means of a horizontally disposed wheel situated at the proximal extremity of the instrument, the blades surrounding the central stem can be gradually separated from each other, so that their combined circumference

* P. 242 "The venereal clinic" by Ernest R. T. Clarkson

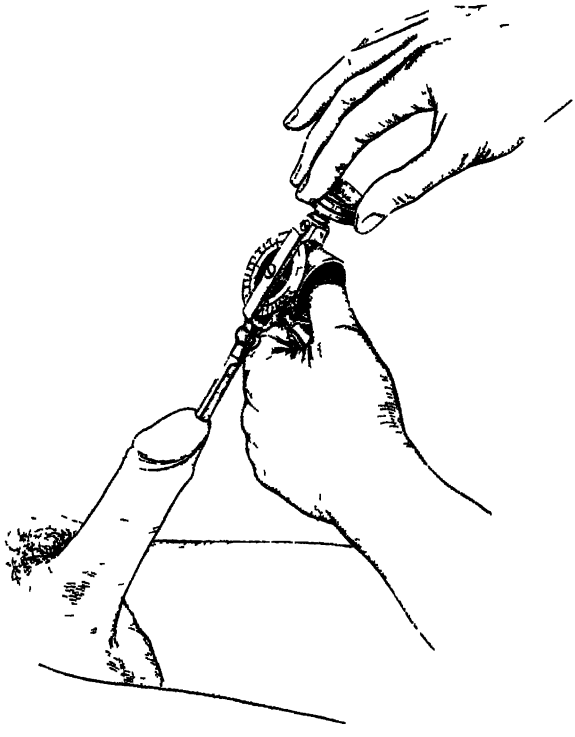

Fig 15

Kollmann's Dilator in use

To face P 50

Fig 16

Kollmann's Three-Bladed Irrigating Dilator, — Straight

To face P 51

can be increased from an initial 22F. up to 45F "

"An ingenious system of canals runs through the neck and the stem of the instrument By means of these canals irrigating fluid can pass in at the tube through the shaft, and issue through small apertures situated in the central shaft. The effluent fluid having thus helped to wash out and distend the urethra at the site of the lesion, retraverses the shaft by a second canal, and makes its exit at the outlet "

"When using either pattern of Kollmann's dilators the metal tube is connected by rubber tubing to a vessel containing the irrigating fluid Another piece of rubber tubing conducts the effluent fluid away into a receiver."

The advantages of this irrigating dilator are

(1) The narrowest portion of the urethra is the external meatus and it causes much pain when dilated sufficiently Kollmann's dilator is so constructed that the expanding blades are

passed beyond the meatus into the urethra which it can dilate up to 45 French without slightest stretching on a normal meatus.

(2) In case of Urethritis and Lacunitis, the instrument stretches the urethral surface, opens up the mouths of the gland ducts and lacunae and loosens the pus plugs which are present in them, and at the same time the urethra is flooded with an antiseptic solution which is brought into close contact with the folds of the lacunae and to some extent penetrates the stretched openings of gland ducts

(3) Formation of fibrous tissue almost always follows gonococcal infection If untreated, it gives rise to subsequent narrowing of the urethral canal. Gradual dilatation with this instrument will effectively prevent the formation of any subsequent stricture.

No treatment of gonorrhœa is complete without a few applications of Kollmann's dilator at the latter part of the treatment.

MEATOTOMY

Congenital narrowing of the urethra is sometimes seen at the urethral meatus. It may occur at the external or internal meatus or both.

In treatment of gonorrhœa, the small meatus is essentially required to be enlarged and the operation is known as meatotomy. The necessity of such an operation is obvious due to the following reasons :

(1) In healthy condition the patient with a very small meatus feels no trouble but in gonorrhœa the urethral mucous membrane becomes highly congested and swollen Thus the narrow meatus is further closed and it hampers the free drainage of the urethral secretion. This is one of the important factors which tend to prolong the duration of the inflammation.

* "About 50 per cent of men suffer-

* P 779 Text-Book of Urology by Eisendrath and Rolnick

ing with a chronic anterior urethritis have a narrow meatus."

(2) In case of chronic anterior urethritis or stricture sound, dilator and urethroscope occupy a very important place in the modern treatment of gonorrhœa. When the urinary meatus is so small that it permits the passage of a number 18 or 20 sound with difficulty, these instruments cannot be passed through comfortably. In that case meatus must be enlarged.

Operation:

Meatotomy is a very simple operation and can be done painlessly in a few moments with a special knife called Meatotome.

It has got a round end; and the sharp blade remains under the cover of a blunt one The instrument is passed into the meatus with the knife on the under surface for a distance of 3 centimeters or so. The lever is then pressed and the blade is made to project sufficiently inside the urethra and as it is

Fig 17

Meatotome

To face P 56

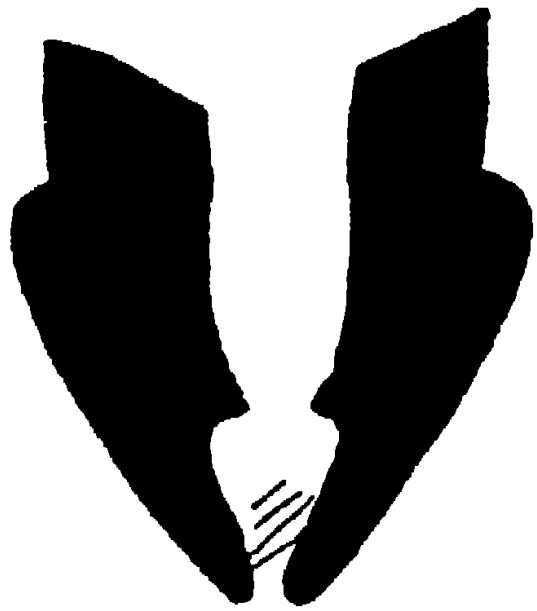

Fig 18

The figure shows the second construction behind the pinpoint
External Meatus

to face P 57

withdrawn it divides the meatus along the middle line.

In order to make the operation successful special attention must be paid to the following points:

(1) Incision must be made big enough. Immediately after meatotomy a sound or dilator must be passed to see whether the meatus has been dilated to proper degree. It must admit a sound 31 or 32 French quite easily, otherwise it will contract again and leave the patient no better than he was before treatment.

(2) In many cases of pin-point meatus there is generally another congenital stricture within one inch behind the external meatus. Before leaving the patient urethra must be examined for this second constriction. If present, the incision should be carried backward to include that stricture also. If the meatus is only superficially divided without incising the deeper portion the result will never be satisfactory.

(3) If proper precaution is not taken, the wound bleeds much and makes the patient nervous. The incision should be dressed with a tight bandage. This is enough to stop all bleeding. The patient should be instructed not to take a large amount of fluid and himself apply similar bandage after each urination. This is required to be continued for a day or two. If haemorrhage is much, a little swab soaked in adrenalin may be applied between the lips of the wound

(4) In order to avoid constriction again dilator should be applied as early as possible not later than four or five days after operation. This should be repeated at least three or four times at weekly intervals.

CHAPTER VII

MODERN TREATMENT OF GONOCOCCAL INFECTION

PROSTATIC MASSAGE

PROSTATIC MASSAGE

This method of therapy is essential in every case of chronic prostatitis *"It is difficult for any local therapeutic measures, applied to the urethral tract, to reach the gland ducts of the prostate and the deeper parts of the gland, this massage of the structures is invaluable"

† "The discomfort of, and the possibilities for harm involved in improper methods of prostatic massage, make the consideration of the subject highly important The commonly practised method of carrying out this simple form of treatment is *not* planned with due regard to the anatomical structures It is likely to be the direct cause of complications of considerable gravity, and to make the treatment a thing to be dreaded and evaded by the patient."

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* P 852 Diagnosis and Treatment of Venereal Diseases by David Lees

† P 201 Gonococcal Urethritis in the male by P S Pelouze

The therapeutic objects of massage may be enumerated as follows

(1) Mechanical emptying of the prostate and seminal vesicles of their pathological contents.

(2) Production of an autogenous vaccine of any infecting organism which may be present in those tissues.

(3) Improvement of the arterial blood supply to the prostate.

I *Mechanical evacuation of the prostate*

TECHNIQUE

Preliminary Methods

* "When a patient is undergoing prostatic massage, he should be instructed to retain his urine for two or three hours and, just before the massage is performed, the condition of the urine from the anterior urethra is first tested by passing three or four ounces of urine in

* P 352 Diagnosis and Treatment of Venereal Diseases by David Lees.

a clear glass. The remainder of his urine is retained in the bladder."

* "A large Bénequé sound is introduced into the urethra and allowed to remain *in situ* for three minutes."

"In careful hands a slight lateral movement of the sound when *in situ* may be found useful, inasmuch as by this means debris may be loosened and the openings of the ejaculatory ducts stretched, though but to a slight extent."

The patient should lie flat with his legs apart and slightly flexed The index finger of the surgeon, after having been protected by a finger stall, is well lubricated and introduced into rectum. One then feels the prostate—its size, shape, consistence and tenderness.

† "If the circumference cannot be distinctly outlined by the finger as it sweeps around the organ, we may take it for granted that the prostate is enlarged and that exudation has taken place

* P. 163 The Venereal Clinic by Clarkson

† P 151. Gonococcal Infection in the Male by Wolbarst

around and about it. We now investigate the organ proper for evidence of hard or soft areas, nodules, areas of tenderness, pulsation and fluctuation."

* "If we view the prostate from its rectal surface, we will observe that on its upper border, there is usually a notch lying between the upper poles of the lateral lobes. Extending beyond these lobes are the seminal vesicles, whose ducts converge towards the mid or urethral line to empty into urethra. Between the seminal vesicles are the dilated extremities of the vasa deferentia, the ampullae." The average direction of the prostatic and vesicular ducts is downwards and inwards towards the opening of common ejaculatory duct into the prostatic urethra.

Direction of movements of fingers:

† "The tip of the finger of the surgeon is placed upon the organ at the

* P 202. Gonococcal Urethritis in the Male by Pelouze

† P. 145. The Venereal Clinic by Clarkson

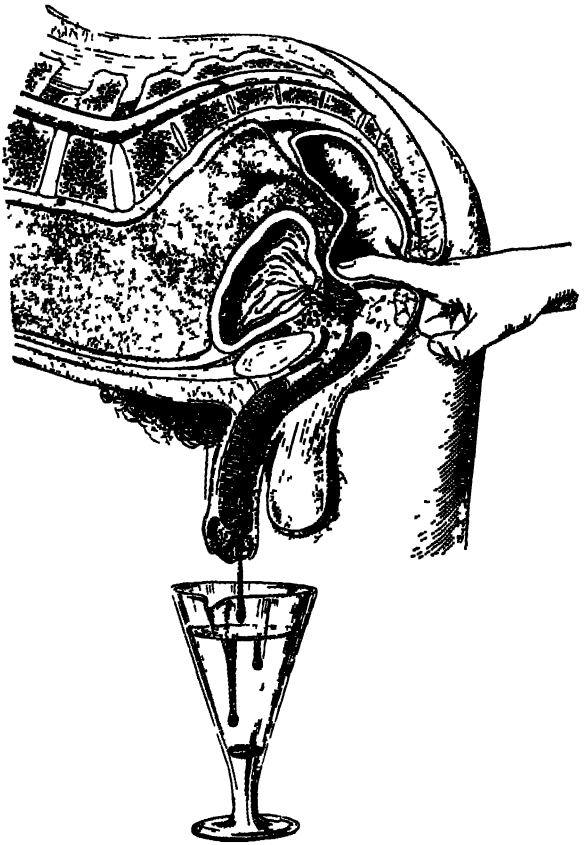

Fig 19

Prostatic Massage in standing posture patient leaning forward

The prostatic secretion is being collected in a glass containing water

To face P 64

Figs 1-5, 15-17, and 19 from Dr Georges Luys

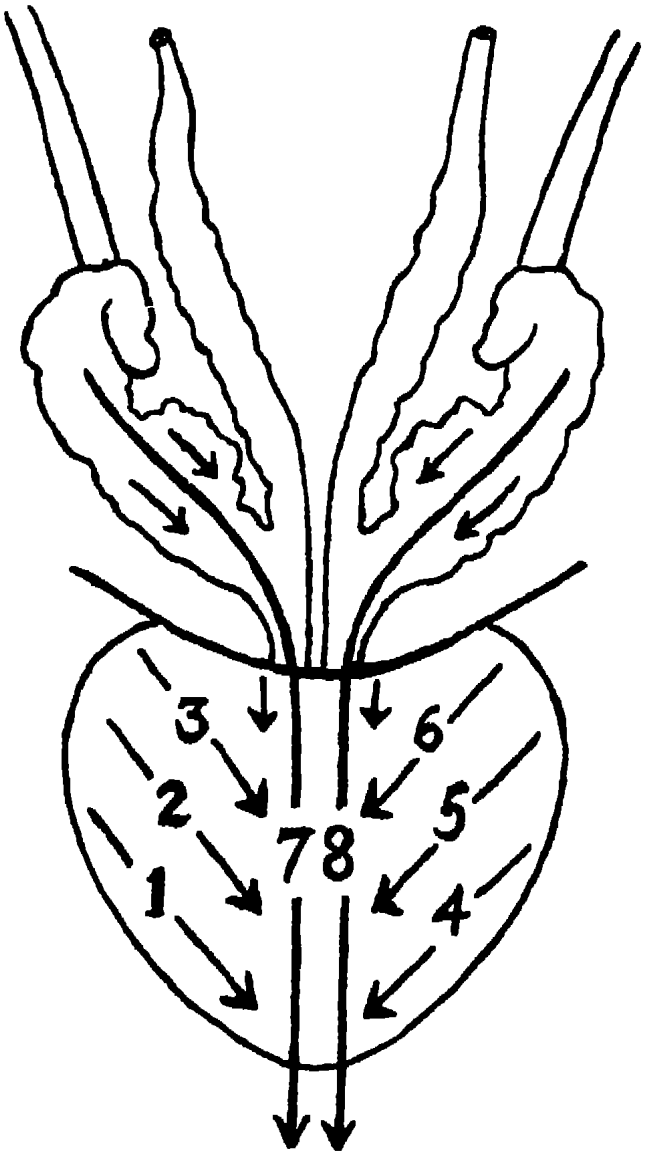

Fig 20

Direction of finger in Prostatic Massage

To face P 65

point most distant from its apex, and firmly drawn *straight* downwards and inwards until the whole of the structure along that line has thus been pressed. This should be done at one stroke, the finger being kept upon the organ the whole time. Then a fresh point in the periphery should be selected, and a new line of action originated, and so on until the entire surface" of the lobe of one side has thus been covered. The same thing is repeated on the lobe of the other side.

* "After both lateral lobes have been emptied in this manner, the finger is passed well up beyond the median sulcus of the prostate, and brought several times from there to the anterior extremity of the gland. By this procedure any expressed pus that may have entered the ejaculatory duct openings is stripped from them into the posterior urethra, and from thence past the cut-off muscle into the bulbar portion of the

* P 203 Gonococcal urethritis in the male by Pelouze

anterior urethra." The dangers of such complications as seminal vesiculitis and epididymitis are greatly reduced.

If the finger is not moved in proper direction success cannot be expected. Movement of finger from side to side is a wrong method. *"Cross massage is also an error Equally erroneous is that form of massage in which the finger is brought in a curved direction downward and inward to the urethral line."

After massage, the excreted discharge may be readily obtained for miscroscopic study. The patient may then be asked to pass urine which will wash out the prostatic secretions in the urethra. This urine is then collected in a glass and the debris examined carefully.

Digital Pressure.

To determine how much pressure should be made during massage, the rule to remember is that one must avoid

* P 202 Gonococcal urethritis in the male by Pelouze.

causing actual pain. Massage that causes pain is too vigorous and will do more harm than good. Gentle but firm pressure is applied in particular to such points as are especially soft or hard and to swellings, infiltration and tender areas.

Duration:

Massage of prostate should take about thirty seconds, more time is not desirable.

The massage should be continued regularly until such time as the prostate has resumed its normal size and the secretion expressed from it and the urine, which is passed subsequent to massage are free from pus cells and gonococci.

Average cases take one to two months before complete eradication of infection is obtained.

Contra-indications

Rest from massage is indicated if it gives rise to pain in the region of vas deferens or epididymis.

A complicating Iritis is also another contra-indication.

There should also be no massage in acute stage of 'prostatitis'

II. *Auto-vaccination due to massage*:

* "Pelouze has shown conclusively that by massage of an infected prostate some gonococcal toxin is forced into the blood producing an auto-vaccination. This is proved by typical vaccine reaction. It is followed by a negative phase."

It is for this reason that the massage is advised to be repeated twice a week (at an interval of three days) thus avoiding possible negative phase

If subsequent to a massage there is any acute exacerbation of signs and symptoms of the disease, the reaction must be allowed to subside before repeating the prostatic manipulation.

There is another point which re-

* "The medical importance of focal infective Prostatitis" by P S. Pelouze—American Journal of medical sciences, August 1932

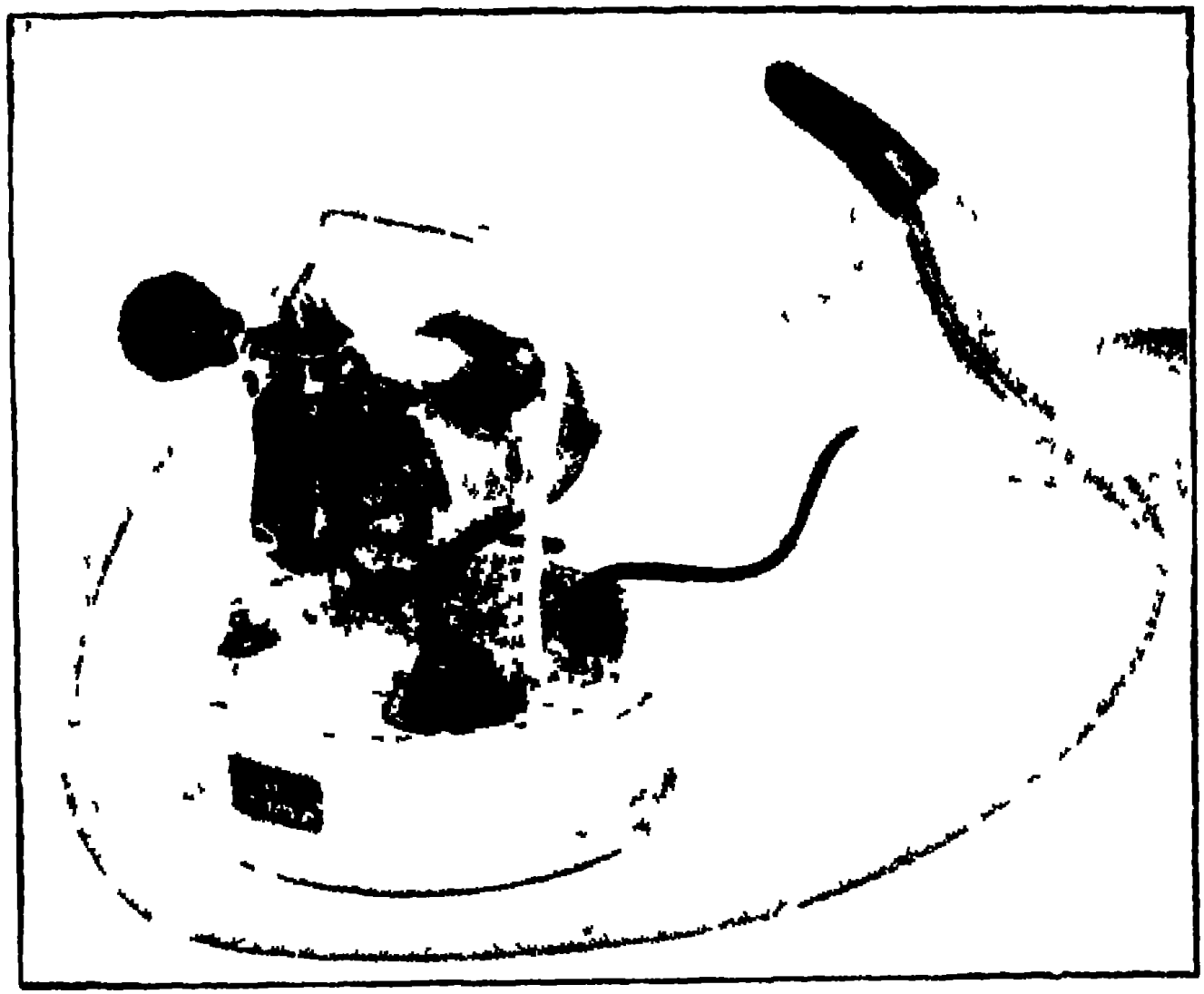

Fig 21

Electric Vibrator of the Prostate

To face P 64

quires special attention. While giving vaccine injection, one must keep in view the negative phase caused by massage.

* "One would hardly expect a high degree of immunity effect in an individual in whom every negative phase is made greater by the administration of a large injection of the same toxin." So in all chronic cases vaccination should be given at an interval of at least five days after the prostatic massage.

III. *Improvement of arterial blood supply to prostate*:

Dr. Wolbarst claims that this object is better fulfilled by his Electric Vibrator than by digital massage.

† "A thin rubber bulb or nipple is attached to the physician's index finger by a simple finger cot. The mechanism is such that the air impulses from a small electric pump are transmitted directly to the finger tip and thereby brought in

* P 76 Gonococcal Infection by Robert v Storer
† Pp 219-220 Gonococcal Infection in the male by Wolbarst

contact with the rectal surface of the prostate as in digital massage The finger does not press the gland, but it is simply kept touching the prostate. So far as a careful search of the literature reveals, this is the first successful attempt to bring actual vibration to the prostate under the direct control of the finger."

"The direction of motion is perpendicular to the surface of the organ, which means that the energy of vibration goes into the actual motivation of the prostate, insuring a maximum amount of penetration and final absorption in the depth of the prostatic tissue"

"The increase in blood supply is made evident by the pleasurable sensation of warmth in the region of the prostate, observed by the patient for a period of fifteen to forty-five minutes"

Static Current

Some American Urologists are applying static wave current to the prostate. If this current is passed

through the gland the prostate contracts rhythmically 2000 or more times during a twenty-minute treatment period. The contractions are pleasant and at the same time powerful and efficient, squeezing out the fluid accumulation and toning up all contractile tissues. But the application of this method in gonorrhœa is still in experimental stage.

Vesicular massage:

I like to conclude this chapter by saying a few words on vesicular massage. It has already been mentioned that the effective vesicular massage is almost impossible The actual difficulty has been nicely expressed by the following lines of Dr. Clarkson:

* "The practitioner must realise that several weeks may pass away before any alteration is made in the vesicle or vesicles which he is attacking. His patience and his finger alike grow weary; every time he tries to massage the

* P 164 The Venereal Clinic by Clarkson

affected organ he finds the condition as it was on the last occasion—as hard, recalcitrant and distended as ever. Sorely he is tempted to give up the unequal struggle, to send the patient elsewhere, or to advise operative interference. Let him not despair. If his work is good, then the day will come when he will feel the vesicular contents definitely moving beneath his striving finger"

By this method, vesiculitis on an average requires for its cure about three and a half to six months. It is for this reason that vasotomy is considered far superior to this long and tedious massage treatment.

CHAPTER VIII

MODERN TREATMENT OF GONOCOCCAL INFECTION

VASOTOMY

Special attention of medical practitioners is required to be drawn to another complication of gonorrhœa viz, chronic seminal vesiculitis. In this case symptoms are such that we are commonly misled and for want of a correct diagnosis these patients are termed "Neurasthenics." They are improperly dosed with bromides and other nerve depressants, all to little or no purpose.

Symptoms:

(1) "Neurasthenic" pains and aches referred to various parts of the body particularly in the lower back and perineum.

(2) Mental disturbances of varying intensity—so much so that these symptoms capture the attention of the physician to such an extent that the main cause of the disease is overlooked

(3) Cramp-like pain, resembling that of renal colic—probably due to futile contractions of the vesicular wall in their attempt to force the vesicular contents through the blocked ejaculatory ducts.

(4) Disturbance of sexual function, principally—premature ejaculation—impotency — spermatorrhœa — painful erection — nocturnal emission often blood stained.

(5) A recurrent, slight, mucoid discharge at the urinary meatus, observed especially on arising in the morning. This symptom is so slight that it is generally overlooked by the patient and is not mentioned before the doctor unless especially enquired of it.

(6) There may also be symptoms of frequency of urination, especially diurnal—shreds in the urine and phosphaturia.

(7) Pain in joints and Arthritis—sometimes making the joints permanently fixed and disabled

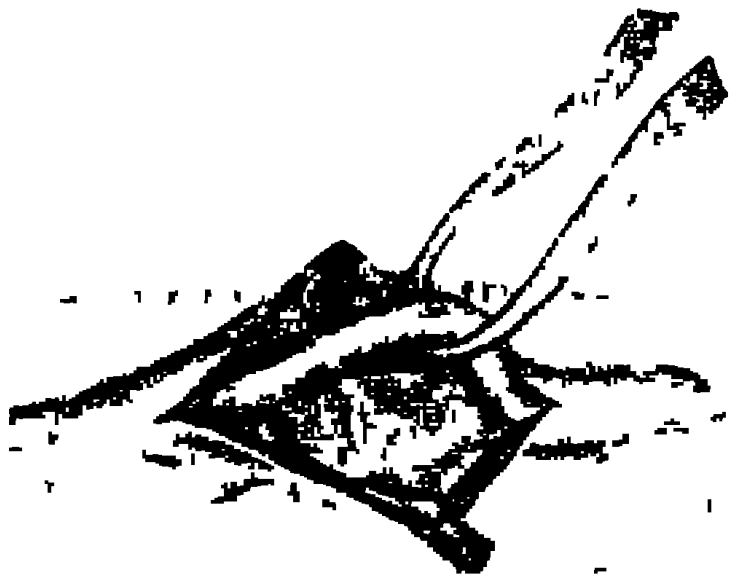

Fig 22

Vasotomy—Fig showing vas isolated from the spermatic cord

To face P 78

Figs 18, 21 and 22 from Wolbarst's "Gonococcal Infection in the Male" by courtesy of Messrs Henry Kimpton

Treatment:

* "The treatment of chronic vesiculitis has undergone a radical transformation within the past decade."

"Merely massaging the vesicles rarely brings about a cure, because the sacs are not fully emptied of their accumulated pathogenic secretions by this procedure."

"No human finger is long enough for that."

From the anatomical position of the glands and their ducts, "it must be obvious, on careful thought, that no amount of massage, irrigation, instillation, or dilatation can have the slightest effect on the infectious focus located within the seminal vesicles."

"There is but one sure and simple way of reaching the cavity of the vesicles, and that is "vasotomy."

The principle of vasotomy is to disinfect the sac and empty them of the

* Pp 228, 229 Gonococcal Infection in the male, 2nd Edition, Wolbarst

toxic products which fill them, nothing else can be of permanent value.

Operation

An incision one inch long is made on the skin over the spermatic cord in the upper part of the scrotum. The vas is isolated from the rest of the spermatic cord and brought to the surface. A nick is made in it with a cataract knife. A fine blunt pointed needle attached to a syringe is inserted into the canal within the vas and 10 c c. of 5 per cent argyrol or better chlorozone solution 1 in 100 is injected

If the patient is asked to pass urine, the solution thus injected can be recovered almost immediately, thus demonstrating that fluid has made complete passage through the vesicles and the ejaculatory ducts into the posterior urethra and bladder.

The operation is very simple and can be done painlessly under local anaesthesia by injection of novocain or procain solution.

CHAPTER IX

MODERN TREATMENT OF GONOCOCCAL INFECTION

VACCINE THERAPY

* "The practice of relying on vaccine therapy and a mixture by mouth, without any local treatment of *adequate investigation* must be condemned."

"Although many successes are recorded as due to vaccine therapy, the percentage of satisfactory results due to vaccine itself is small. Gonococcal vaccines, stock or autogenous, are extremely disappointing although universally employed, for routine use *they are almost valueless*."

From the record of past history of many patients who came to my clinic I find that almost all of them took a good number of vaccine injections from other doctors without any cure. I am giving below the history of a few cases.

---

* P 116 Treatment of venereal diseases in general practice by Thomas Anwyl Davis, consulting Venereologist to the London County Council

Case No	Symptoms before vaccine treatment	Injections given	Symptoms after injection
I	Pus on squeezing	Arthigon ordinary— 6 Extra strong—12 Gono yatrin—12 Strepto, staphylo, B. coli vaccine—6 Aolan— 14 Solu Salvarson—5 Total 55	1. Threads in urine—persisting 2 Microscopic Exam· Pus cells—5 per field
II	Pus soiling cloth	Gono Vaccine—6 Aolan— 4	Morning drop persisting
III	Pus on squeezing	Gono Vaccine—5 Aolan— 3 Manganese Butyrate—2	Morning drop persisting
IV	Pus on squeezing	Detoxicated Gono vaccine (Niltox Brand) 6 Mixed Gono Vaccine— 4	1. Irritation in urethra 2 Uncomfortable feeling in perineum 3. Microscopic Exam Pus cells-73 per field
V	White discharge before urination	Mixed Gono vaccine— 5 Arthigon— 6	Microscopic Exam: Pus cells—10 per field

It is difficult to say how far the slight improvement noticed was due to vaccine

or due to urethral irrigation, which was given in almost all the cases along with the vaccine treatment. It will be interesting to note that the final troubles of all the above cases were totally stopped by one or two applications of operative urethroscopy in my clinic. Repeated microscopic examinations after provocative vaccine injections at intervals proved conclusively that they were radically cured.

* "The tendency we see exhibited in other branches of medicine to apply vaccine treatment in an empirical manner, and to the neglect of other more proved, but troublesome methods, is frequently exemplified in cases of gonococcal vesiculitis If a condition of vesiculitis is maintained by an occluded duct, vaccines cannot be expected to remove the obstruction and to do the work which should be done by the surgeon's finger, tiring though this be to the practitioner and patient alike."

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* P 165 The Venereal Clinic by Ernest R T Clarkson

There is some doubt about the efficacy of vaccine therapy in the minds of many urologists. Many of them tried to find out a cause but unfortunately almost all the opinions were different. Some found fault with the improper doses used. Some blamed the doctors for their negligence in watching the tissue reaction of the patients injected. Some detected defect in the method of preparation of the vaccine and so on. Some remarked with regret that in the market there was not a single type of vaccine which had proved really effective in the hands of all urologists.

The causes of failure of vaccine treatment as enumerated by them are described below:

(1) Carelessness about doses used :

* "*The failure* of gonococcal vaccines have been due to the enormous doses used."

"So delicate is the immunity balance in this disease that the administration

* Pp 187-189. Gonococcal Urethritis in the male by Pelouze

of large quantities of vaccine usually has an opposite effect from that desired."

"Clinically, it is common to encounter patients who have been given many large doses of vaccine during the acute stages of urethritis Their improvement is very gradual and decidedly delayed."

(2) Negligence in watching the tissue reaction of the patient :

* "The *widely varying results* obtained from this method of therapy are largely due to the fact that too little attention is paid to the individual type of case in which the treatment is employed. No two cases of gonococcal infection will react similarly to the injection of a vaccine, and unfortunately for the success of vaccine therapy, haphazard methods of injecting dose after dose of vaccine at stated intervals are frequently employed, and little if any attention is paid to the reaction set up in the

* P 541 Diagnosis and Treatment of Venereal Diseases by David Lees

patient's tissues by the administration of this potent therapeutic agent."

* "The administration of the vaccine gives rise to a slight increase of temperature, which should subside to normal within forty-eight hours. If so, at the second injection the dose may be slightly increased As the dose of the vaccine is increased, the interval between doses may be conveniently lengthened."

"If any injection gives rise to a gross reaction either local, focal, or general in character, the succeeding dose should not be increased, and may occasionally be lessened with advantage."

(3) Difficulty in preparation of the vaccine :

† McDonagh says "In my opinion, vaccines will always fall short of complete success, because the particles undergo physical changes when the vaccine is prepared."

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* Pp 541-543 Diagnosis and Treatment of Venereal Diseases by David Lees

† P 347 Venereal Diseases—their clinical aspect and treatment by McDonagh

According to Eisendrath and Rolnick, * "Gonococcus undergoes autolysis very readily and a good vaccine is difficult to obtain."

"Autogenous gonococcus vaccines are difficult to obtain"

The difficulty of preparing gonococcal vaccine is clear from the following lines of McDonagh—†"when Besredka lessened the toxic action of vaccines by sensitising them, Klein and I carried the principle to gonorrhœa, prepared some sensitised gonococcal vaccines, and injected them intravenously, with better results than had been obtained heretofore Owing to the difficulty of preparing sensitised vaccines, and to the fact that they quickly become desensitised on keeping, as a routine method of treatment it became impracticable"

"About this time various commercial vaccines were used, such as arthigon, gonargin, phylacogen, serobacterin, etc.,

* P 215 Text Book of Urology by Daniel N Eisendrath and Harry C Rolnick

† P 347 Venereal Diseases by McDonagh

all of which were sometimes useful, but deteriorated on keeping. The results being unsuccessful, taken as a whole led to vaccines falling into disuse, till they were recently resurrected by Thomson with his detoxicated vaccine."

"Although this vaccine is easier to prepare, keeps longer, and is therefore more useful than sensitised vaccine, no better therapeutic results are obtained with the former than with the latter."

(4) Want of good vaccine in the market :

Therapeutic values of different types of vaccine as described by different urologists are strongly contradictory. One preferred auto vaccine, another liked detoxicated gono vaccine, the third one wanted combination of the two, the fourth specialist showed special liking for polyvalent vaccine and so on. This shows that no particular preparation gave uniformly satisfactory result in the hands of every doctor who can be considered as an authority on the subject.

When many strongly condemned both the detoxicated gono vaccine and autogenous vaccines, Dr Lees found excellent result in the combination of the two types. He writes that *"the combination of a polyvalent detoxicated gonococcal vaccine and an autogenous vaccine of the patient's infecting organisms is the ideal."

Dr. Wolbarst says, †"I found a mixed polyvalent vaccine (Mulford) most useful as a routine measure."

On the face of so many contradictory opinions it is very difficult to select a good vaccine. One cannot be blamed if he becomes suspicious about any efficacy of these preparations.

By way of summarising the above statements I like to make the following remarks.

It may be true that the preparation of gonococcal vaccine is difficult but it is too much to say that all the vaccines in

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* P 545 Diagnosis and Treatment of Venereal Diseases by David Lees

P 91 Gonococcal Infection in the male by Wolbarst

the market are prepared by defective methods and all the productions are altogether worthless.

On the other hand practitioners not interested in venereal diseases may use vaccine in a wrong way, regarding the dose and tissue reaction, but this cannot be the case with all, particularly the specialists in this line.

But how is it that no particular type of vaccine in the market has yet proved its value in the hands of a large section of urologists and has gained the same universal support as Neosalvarson or Novarsenobillon in the treatment of syphilis?

In order to make the vaccine therapy really effective and successful much research work is yet to be done.

In my clinic, I have tried various types of vaccines—autogenous vaccine, detoxicated gonococcus vaccine, combination of the two, arthigon ordinary and extra strong, ordinary mixed gonococcus vaccine and many other preparations but the result was so dis-

appointing that I have stopped vaccine injection except in a few selected cases. I use small doses of vaccine with good result in those cases only which continue in a stationary stage for sometime or show sign of joint pain or definite arthritis.

In my opinion, it will be quite appropriate to conclude the chapter of vaccine therapy by the following statement of Dr Storer in which he remarks that·

* "The consensus of opinion in this regard seems to be that the mere increase of specific gonococcal antibodies in the blood by vaccines, while tending to prevent the occurrence of acute complications and shortening the duration of the discharge, has no effect in eradicating the infection from its localized sites in the prostate and Littré's glands. For these conditions, which are inevitable sequel of the infection, *local treatment by cauterization and instillation is still our most efficient armamentarium*"

* P 75 Gonococcal Infection by Robert V Storer

CHAPTER X

MODERN TREATMENT OF GONOCOCCAL INFECTION

ORAL MEDICATION

* "Oral medicines—most of them are rather of the nature of placebos, and as such may do more harm than good. Human intelligence has reached a plane where the physician generally can do best by being perfectly honest with his patient. He does not need to pour useless things into the stomach to make the patient feel that much is being done for him."

† "There is no existing drug which of itself will cure a gonococcal urethritis."

We have as yet no specific to combat the infection in the urethra or the accessory glands.

‡ "Internal medication is of least importance, for the reason that the effect of

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* P 148 Gonococcal Urethritis in the male by Pelouze

† P 327. Diagnosis and Treatment of Venereal Diseases by David Lees

‡ P 210 Text Book of Urology by Eisendrath and Rolnick.

anything we now have at our command when taken by mouth, upon the urethral mucosa, is very slight."

The remedies used internally are in the main (1) alkaline diuretics (2) balsams (3) urinary antiseptics.

(1) *Alkaline Diuretics*:

* "The so-called alkaline diuretics, potassium acetate and citrate, long have enjoyed much reputation. They cause little, if any, change in the urinary reaction, and as diuretics they are greatly inferior to water."

§ "The popularity of alkaline diuretics had its origin no doubt in Thomson's discovery that gonococci are soluble in alkaline media."

"Janet states, moreover, that bicarbonate of soda is favourable to the growth of gonococci. Therefore alkaline and gaseous (carbonic acid) drinks should be strictly forbidden in gonor-

* P 149 Gonococcal Urethritis in the male by Pelouze.

§ P 56 Gonococcal Infection by Storer.

rhœa, likewise laxative salts and acid fruits "

" The urethra is adapted for passing an acid urine and I do not think medication is of any value through any change it may cause in the hydrogenion concentration of the urine."

(2) *Balsams*:

* "The balsamics do little more than temporarily hide the evidences of the disease, for it is not shortened thereby, in fact, such patients are generally the victims of prolonged attacks."

† "The balsams and oleo-resins such as sandalwood oil, copaiba, and the many proprietary preparations such as gonosan, arrheol, santalmidy, and many others are apt to cause gastro-intestinal and renal disturbances, and their value is much overrated. By their astringent ac-

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* P. 149 Gonococcal Urethritis in the male by Pelouze.

† P 327 Diagnosis and Treatment of Venereal Diseases by David Lees

tion on the mucous membrane, they may lessen the amount of the discharge in some cases. They have, however, no bactericidal action on the gonococcus. They are of most value in cases with a hyperacute discharge."

"They should not of themselves be relied on to cure any gonococcal infection."

(3) *Urinary Antiseptics*:

* "Within the past decade or two many urinary antiseptics have been devised in the hope that they might actually destroy the gonococci or at least render the urethra an unsuitable breeding place, but they have been distinct failures, as a rule, with very few exceptions."

In my clinic, for many years I used alkaline diuretic mixtures with bromide as a routine treatment in acute stage of the disease. The idea was that the alkaline urine would make the urethral

* P 73 Gonococcal Infection in the male by Wolbarst

inflammation more tolerable, and bromide will act on the nervous system lessening the severity of the burning sensation It is difficult to say how far the slight improvement, if any, was due to irrigation and intake of plenty of water or due to the medicine itself.

In acute Posterior urethritis.

I generally prescribe Tr Belladona with alkaline mixtures with the expectation of decreasing the painful spasm of the sphincter.

In this stage action is somewhat better by the rectal application of suppository containing

Morphin Hydrochlor	gr.	$\frac{1}{4}$
Atropin Sulphate	gr	$\frac{1}{75}$
Oil of theobroma	qs.	

applied twice daily.

In many cases I used pyridium, neotropin, urocedral, gonosan and many other sandalwood oil preparations of the market but I am sorry to remark that no drug could give me any satisfaction as

far as the cure of the disease was concerned.

I can assert with all the emphasis I may command that in chronic gonorrhœa oral medicines are absolutely useless. Nothing short of urethroscopy, diathermy, prostatic massage, dilatation, vasotomy etc. can cure the disease radically.

In my clinic, oral medication has been stopped almost altogether. It has been kept reserved only for a few neurasthenic patients who cannot be satisfied without something being given by mouth.

CHAPTER XI

MODERN TREATMENT OF GONOCOCCAL INFECTION

IRRIGATION

*"Irrigations are not as popular as they have been in the past."

†"The purely cleansing value of warm antiseptic fluid in large quantities flowing in and out of the inflamed urethra cannot be gainsaid."

§"The action of the irrigation is mainly cleansing and deodorant."

There is a long list of chemicals used for irrigating purpose, each of which has its advocate claiming its superiority over others in its penetrating power, specific germicidal efficacy, non-irritating property and so forth.

These chemicals are potassium permanganate, acriflavine, zinc sulphate, zinc permanganate, nizin, perchloride of mercury, zinc sulphocarbolate, chloramine T, mercuric oxycyanide,

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* P 213 Urology by Eisendrath and Rolnick

† P. 77. Gonococcal Infection in the male by Wolbarst

§ P 59 Gonococcal Infection by R V Storer

mercurochrome, picric acid, methylene blue and various silver preparations such as silver nitrate, argyrol, protargol, hegonon, silvol, neo silvol, albargin and so on. But unfortunately, every one of them is failing to bear the test of time and new urologists are trying to hunt out new remedies and the long list is being further lengthened. Lunosol (white salt) is the latest American addition to the list. Still more recently neo reargon has been strongly approved by Czechoslovakia. A German farm has recently prepared a compound of methylene blue and silver called "Argochrome." From the past experience it is difficult to say whether these new products will not have similar fate as their predecessors.

For want of satisfactory result every doctor has to change the chemicals one after another. At one time Dr. Wolbarst advocated the new preparation "'Neo reargon" very highly in his book. He wrote *"clinically, numerous observers

* P 80 Gonococcal Infection in the male by Wolbarst.

both in the United States and abroad (including myself) have found it valuable, especially in the very early stages of acute gonorrhœa" But Dr. Storer writes that the same doctor *"A. L. Wolbarst of New York (author of "Gonococcal Infection in the male"), in a personal communication stated that he was obtaining excellent clinical results in acute gonorrhœa with urethral injections of argyrol and that this was now his drug of choice." But who can say, even now he has not to change his drug of choice more than once.

In my clinic I have used silver nitrate, argyrol, neo reargon and various other chemicals described above one after another but none of them could give me real satisfaction.

It is not very difficult to trace the cause of these failures. The chemicals work only superficially. They cannot reach the germs which are generally lying deep into the submucous layer.

* P 66 Gonococcal Infection by Storer

The strength of the solution cannot be increased to such an extent as to kill the germs in the urethra by direct action on them. In that strength, the chemicals only devitalize the very delicate mucous membrane and render the disease latent from the start by producing a coating which stands in the way of free drainage of the inflammatory products. According to some, they are used to give a mild stimulation to the mucous membrane which is mainly relied on for cure.

Although there is much doubt about the efficacy of these chemicals used there is nothing to deny that the hydrostatic method of their application is open to several serious objections if not properly done. These may be enumerated as follows·

(1) If the douche containing the irrigating fluid is placed higher than 3 ft above the patient's pelvis,* "there is a distinct possibility—not very remote—

* P 77 Gonococcal Infection in the male by Wolbarst

of irritation and trauma resulting from the mere pressure of this volume of fluid against the inflamed mucosa" The inflamed urethra cannot stand too much pressure without injury.

(2) If the infection is an anterior one, only the anterior urethra is to be irrigated and the solution must be allowed to run out as it runs in through a double channeled nozzle, otherwise *"there is a very imminent danger of converting an uncomplicated anterior infection into a posterior, with its subsequent complications, by driving the infectious elements into the deeper parts of the traumatized canal", on the other hand, the strong irrigating fluid irritates and damages the normal mucous membrane of posterior urethra making it a fertile soil for the germ to grow over it.

For the same reason irrigation by an ordinary glass syringe by the patient himself does more harm than good; the

* P 77 Gonococcal Infection in the male by Wolbarst

pressure drives the fluid into the posterior urethra.

* (3) Kohnstam and Cave have shown that fluid can be driven into the seminal vesicles by forced injection from urinary meatus.

‡ (4) "How many cases of prostatitis and epididymitis owe their being to the faulty use of irrigations none can say, but the number is very great."

(5) "No layman is qualified to be entrusted with an object possessing such dangerous possibilities as a urethral syringe in incompetent hands."

(6) We generally commit blunder by irrigating an acute posterior urethra. All local treatment should be suspended when the posterior urethra is acutely inflamed, for their possibilities for harm outweigh the slight good they may do.

(7) It is wrong to think that during posterior irrigation the higher the douche

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* Kohnstam and Cave The Radiological Examination of the Male Urethra, New York, 1925, William Wood & Co

‡ Pp 77 & 84 Gonococcal Infection in the male by Wolbarst

and greater the pressure it will be easier to force the fluid into the bladder because it is generally easier to get the sphincter muscle to relax with slight than with great pressure. The latter irritates it and a spasm starts.

(8) In the hands of the inexperienced or careless this method is usually carried too far and too long In these cases the discharge persists to continue and never stops. This discharge is more due to overtreatment and overirritation of the urethra than due to the disease itself.

* "Suspend all local treatment in patients who come to us in bad shape after much local treatment elsewhere, not infrequently this cessation of treatment is all that is needed to bring about a complete cure or a marked amelioration of the inflammatory symptoms"

(9) The strength of the solution used for washing or instillation must not be such as to cause great burning and

* P 81 Gonococcal Infection in the male by Wolbarst.

profound subsequent inflammatory reaction.

(10) *"Silver solutions should be made fresh every day or two, using distilled water exclusively, otherwise the solution will deteriorate, produce considerable irritation, and do more harm than good."

(11) During irrigation if crystals are used to prepare solution it is important to make sure that they are dissolved first in a separate vessel A crystal in the urethra causes much pain.

I shall conclude this chapter by the following lines of Dr. Wolbarst. †"There is much truth in the widespread opinion that *while these irrigations may actually cut short the acute stage, they really tend to prolong the terminal stage,* the result being a tendency to the development of a chronic catarrhal condition."

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* P 81 Gonococcal Infection in the male by Wolbarst

† P. 78 Gonococcal Infection in the male by Wolbarst

CHAPTER XII

MODERN TREATMENT OF GONOCOCCAL INFECTION

TREATMENT WHAT IT SHOULD BE

Acute Anterior Urethritis:

Silver ionization and diathermy are the methods of choice at this stage. They are applied on alternate days for two or three weeks. Silver in ionic form is dragged into the submucous layer where it kills the germs. In acute stage of anterior urethritis, diathermy has no direct action but it acts indirectly by improving the circulation of the posterior urethra and thus guarding against the spread of the disease backward.

Along with ionization and diathermy, it is necessary to give an anterior irrigation with plain hot water or weak solution of potassium permanganate or acriflavine. The idea is to get rid of purulent discharge and keep the urethra clean.

When the acute stage is over, the treatment is completed by a few applications of Kollmann's dilator once a week. This prevents the tendency of contraction of the urethral

canal, which is the inevitable sequel of gonorrhœal urethritis. No treatment is complete without a few dilatations at the latter part of the treatment.

In this stage, oral medication is superfluous and vaccine injection harmful. Dr. Wolbarst writes* "the usual course of acute gonorrhœa is from eight to twelve weeks."

"I should consider it a great achievement if we could cure *every* case of gonorrhœa in ten weeks."

In my clinic, when I used to follow the old methods of treatment eg., oral medication, irrigation, instillation and injection of vaccines, almost every anterior case developed posterior infection and no case could be cured satisfactorily earlier than twelve weeks and sometimes more But by this new method the course of treatment has been shortened to six to eight weeks only, provided we get full co-operation of the patient.

* P 46. Gonococcal Infection in the male by Wolbarst

Acute Posterior Urethritis·

Diathermy alone gives excellent result in this condition, if applied on alternate days for one or two weeks. Frequency and urgency of urination decrease, severe pain during micturition is greatly relieved and discharge of blood with pus disappears within a remarkably short period.

In very severe cases, patient will derive more relief by the simultaneous use of rectal suppositories containing ichthyol, morphin and atropin applied twice daily. In this stage, I generally prescribe alkaline mixture with Tr. Belladona, Potassium Bromide and Magnesium Sulphate It gives great relief to the patient. All local treatments must be stopped during this period

After the acute stage has passed off, it is required to give a few prostatic massage twice a week and a few weekly applications of sound and instillation of silver nitrate into posterior urethra by means of Keyes Ultzmann syringe.

Chronic Antero-Posterior Urethritis.

(a) *Folliculitis and Lacunitis:*

Cauterization through urethroscope is the only treatment in case of folliculitis and lacunitis. One or two applications are necessary, anterior or posterior or both.

This is preceded and followed by two or three dilatations by sound and anterior Kollmann's dilator.

(b) *Stricture.*

Our usual method is to apply negative ionization and mechanical dilatation by Kollmann's dilator alternately once a week. This is to be continued for six to eight weeks.

Negative ionization tends to dissolve the scar tissue and make the dilatation easier and its effect is more lasting.

The patient should take this course of treatment once or twice every year and that for years together.

(c) *Chronic Prostatitis and Vesiculitis.*

Application of diathermy in this condition has got universal recommen-

dation. But this method must be accompanied by regular draining of these glands. This is possible if we can keep the mouths of the ejaculatory ducts open by sound and direct medication to the posterior urethra, and give regular massage to prostate and seminal vesicles. Sometimes the occluded ducts make the task very difficult and tax too much on the patience of the doctor.

*"Neosalvarson ·2 to 3 gram intravenously at intervals of four to five days, and sulpharsphenamine 4 gram intramuscularly at the same intervals and same number of injections, have cured fifty per cent of chronic vesiculitis as reported by Belfield & Rolnick." I tried arsenic injections in several cases of chronic vesiculitis but the results were not very satisfactory.

Arthritis:

For immediate relief of severe pain, the joint should be at once put on a splint and its movements stopped as far

* P 366 Text Book of Urology by Eissendrath and Rolnick.

as possible. But careful passive movement should be started at regular intervals. This latter process will prevent adhesion and permanent damage of the joint which is the common sequel of gonorrhœal arthritis. Diathermy is sometimes applied to the infected joints. Heat kills the germs, reduces the inflammation and gives some relief to the patient But for radical cure of arthritis special attention must be paid to disinfection of the seminal vesicles which are the main and original sites of infection. So the treatment of arthritis is the treatment of chronic vesiculitis described above Alternate injections of vaccines and aolan are very effective in this case. I have not found very good result with contramine injections which are so highly advocated by McDonagh

If all above methods fail vasotomy is the last and best alternative possible.

Epididymitis:

In case of acute epididymitis with severe pain in epididymis and high

fever, I have found excellent result by diathermy over the affected part and intravenous injection of sodium iodide solution 1 gram in 10 c.c. of distilled water given every 48 hours. It is generally not necessary to give more than four or five injections. Pain and temperature both decrease decidedly within twenty-four hours. Reaction is rare.

Gonococcal Ophthalmia

Excellent result is obtained by washing the eye with acriflavine lotion (1 in 8000) every hour by means of an eye-bath.

If necessary, argyrol lotion 2 per cent may also be applied.

Balanitis:

This complication generally occurs when the prepuce is long and the part is kept unclean. Excellent result is obtained by bathing the part in picric acid solution 1 in 100. The patient is cured within four or five days.

In worst cases, if above method fails, the next and best alternative is negative ionization with zinc sulphate solution One or two applications are quite sufficient to cure every case and that without a single failure.

Endocervicitis:

In very acute stage, diathermy to cervix by special cervical electrode with douching by potassium permanganate and plugging with ichthyol glycerin tampon is the method of choice.

When the acute stage is over ionization of cervix with silver or zinc rod should be started

In chronic and most obstinate cases with small external os, electro-coagulation of the cervical canal is the best and latest treatment possible.

Gonorrhœal Impotency·

Being the worst and most important complications of gonorrhœa, it has been described a little more elaborately in a separate chapter.

CHAPTER XIII

MODERN TREATMENT OF GONOCOCCAL INFECTION

IMPOTENCY

IMPOTENCY

In order to understand the principle of treatment followed in case of impotency, it is essential for the reader to have a clear idea of the *mechanism of normal coitus* and the *pathological changes produced by the disease*. It is for this reason that I have tried to explain these two important subjects first before going into the details of descriptions of different methods of treatment.

Mechanism of Normal Coitus

In the cerebrum of the brain is present the higher sexual centre where originates the sexual desire or "libido" as it is called. As soon as we see, touch or come in contact with any woman, this higher centre is excited and it at once sends impulse to the lower sexual centre, called *Erection Centre*, situated in the lumbar portion of the

spinal cord. This centre has got two sets of nerves.

(1) One set passes from the centre to the sympathetic nervous system and thence to the blood vessels supplying the penis Impulses passing through these nerve fibers dilate the blood vessels, fill up the corpora cavernosa with blood and thus make the organ somewhat rigid.

(2) The other set of nerves issuing from the centre acts directly upon the local muscles e.g, Erector Penis, Accelerator Urinary Muscle and the Suspensory Ligament. All of them contract and the penis becomes more stiff and fit for penetration.

During coitus, the frictions on the penis continuously send new impulses to the Erection Centre and serve to strengthen and keep up the erection.

Besides, the Erection Centre serves another very important function. Although this centre spends a portion of the impulse reaching it from brain and penis for dilating the blood vessels and

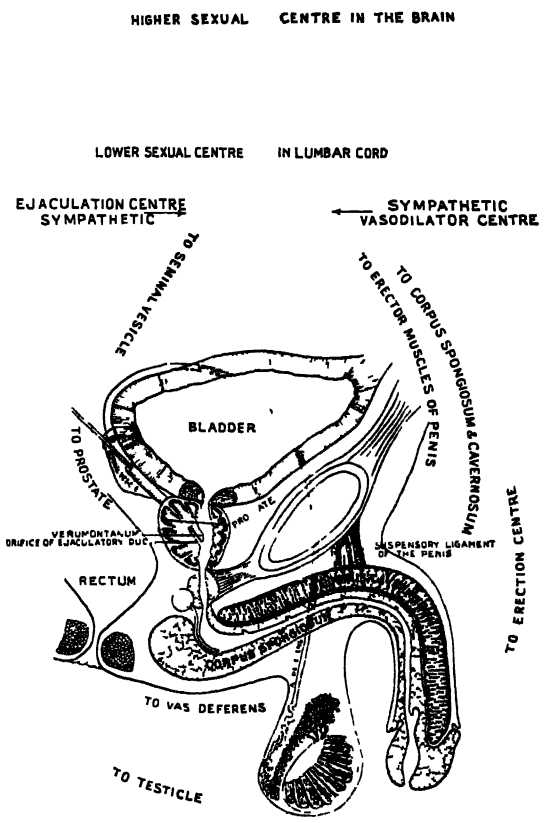

Fig. 23

MECHANISM OF NORMAL SEXUAL ACT

To face P 124

stimulating the erector muscles, the rest of the impulse it keeps back and stores up until the cells of the centre are filled up to their utmost capacity. So long as the centre keeps back the receiving stimulation the sexual act continues. Upon this retaining capacity of the centre depends the strength of the sexual power of the individual.

When stimulation accumulates to such an extent that it goes beyond the retaining power of the Erection Centre, it overflows to a third centre called Ejaculation Centre,—consisting of two parts—sympathetic and spinal

As soon as impulse reaches the sympathetic Ejaculation Centre, expulsion of semen is started by its action on the unstriated muscle fibers of the testicle vas deferens, prostate and seminal vesicles. The peristalsis of vas deferens drives the spermatozoa from the testicle into the ejaculatory duct. The seminal vesicles and prostate contract at the same time forcing out their contents into the same ejaculatory duct where

they mix with spermatozoa and form the semen.

The ejaculatory duct has got special sensory nerves. When this duct squeezes the semen out of it into the posterior urethra, those nerve endings are pressed producing the extreme pleasurable sensation known as orgasm.

When the semen enters into posterior urethra the spinal ejaculatory centre comes into play and all the stripped muscles of the penis and perineum contract at once throwing the semen out of the penis and the sexual act is completed.

Pathology of Impotency:

In chronic gonorrhœa, we generally find long standing inflammation of the prostate and seminal vesicles. These glands being full of inflammatory products continuously send impulses to the Erection Centre keeping it in a state of constant hyperæmia. As a consequence of this, the centre remains in such an

irritable condition that as soon as any stimulation reaches it from brain, it cannot retain it to serve its main function of erection and penetration. The impulse at once overflows the erection centre to the ejaculation centre and produces expulsion of semen, before the organ gets time to be sufficiently erect and stiff.

In the early stage of the disease penetration may be somehow possible but the ejaculation is so rapid that the partner is never satisfied This is called "Premature Ejaculation"

Gradually the over-irritated Erection Centre becomes so much exhausted that it does not respond to any stimulation, either from brain or from penis This is the stage of complete impotency.

Sometimes the verumontanum becomes much enlarged and in some cases a growth may be found projecting over it. If it almost touches the wall of the urethra on either side, it keeps on tickling the part and stimulating the Erection Centre reflexly even in the absence

of the coitus, similarly as an enlarged uvula irritates the fauces and produces coughing. This irritation is further increased when the verumontanum is rendered more congested during the coitus and rapid ejaculation is produced.

If impotency persists for some time, on account of their disuse the muscles of the penis and perineum lose their tone and become weak and flabby. These muscles fail to respond properly even when the Erection Centre is restored to its normal function unless special attention is paid to them during the course of treatment.

In this connection I like to mention another point which is also of special importance In old cases of impotency, the patient loses confidence in himself, his will power is lost to a great extent and he becomes a neurasthenic. This is due to weakness in the higher sexual centre in the *cerebrum.* Unless this symptom is taken into serious consideration it is not possible for the patient to stick to any doctor for the lengthy course

of treatment which is necessary in these cases.

Thus we find that in impotency, the pathological changes occur in (a) prostate, seminal vesicles, posterior urethra —especially verumontanum, (b) lower sexual centres in the spinal cord, (c) muscles of the penis and perineum, (d) higher sexual centre in the cerebrum For a radical cure of impotency each individual part demands special attention and particular type of treatment.

TREATMENT

In case of gonorrhœal impotency there are two diseases,—gonorrhœa and impotency—which are to be treated separately one after another. I shall consider the patient as cured of his gonorrhœa by methods given in previous pages and shall describe here the treatment of its sequel "Impotency" only In describing the different methods of treatment, I shall take up the affected parts one after another as given at the end of the pathology of the disease.

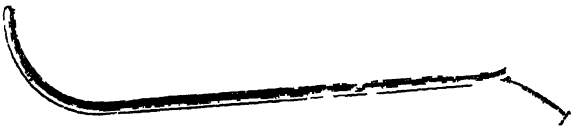

Fig 24

Urethral Psychrophore

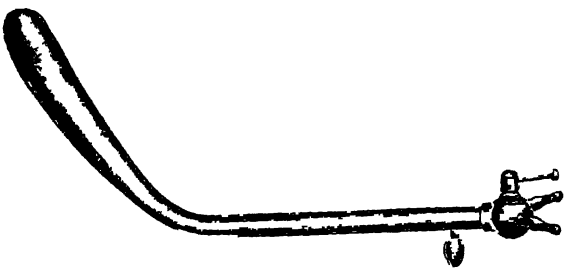

Fig 25

Rectal Psychrophore

To face P 130

increased to 15-20 minutes. The tonic and beneficial effect of the psychrophore is beyond question

But in conjunction with the urethral psychrophore, it is always advisable to use a rectal or prostatic psychrophore."

(3) Urethroscopy.

In case there is present any growth or any pathological condition on or near verumontanum it should properly be cauterized through modern posterior urethroscope.

Instillation of silver nitrate solution into the posterior urethra directly by means of Keyes Ultzmann syringe may do good in some cases but the operative urethroscopy is far superior to the instillation method.

(B) *Lower Sexual Centres in the Spinal Cord*:

(1) Diathermy—To remove congestion of this sexual centre I apply diathermic heat direct to the spinal cord. The patient lies flat on his back. A long narrow active electrode is placed on the

lumbar area of the spine and a larger dispersing electrode on the opposite surface on the abdomen. This technique concentrates the path of the current chiefly over the relatively narrow area of the spine. A current strength of 700 to 1400 milliamperes is given for twenty minutes or longer three times a week.

(2) Application of stimulating ointment on the back—good result may also be obtained by application of the following ointment on the skin of the back over the exit of lumbar and spinal nerves. It acts as a counter-irritant.

*"Camphor	ʒss
Chloralis	ʒss.
Pulv. Capsicum	ʒi.
Oil Sinapis	gtt. x.
Petrolati	℥i.

Sig Apply externally to back with vigorous friction.

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*P 177 Sexual disorders in men and women by William J Robinson

Painting the back with pure chloroform until there is a sensation of lively burning is also good.

Massage of the back, vibration and concussion of the spine are decidedly useful."

(C) *Muscles of Penis and Perineum*

(1) Faradic current—Weak or paralysed muscles can be made to contract by electrical stimulation. In this way they can be artificially exercised. Rhythmic contraction and relaxation also increase the circulation in the muscles. To restore their lost power I regularly apply faradic current to the weak and flabby muscles of penis and perineum.

(2) Stimulating ointment—the stimulating ointment prescribed for back may also be rubbed around the root of the penis and washed off in the morning with soap and water. A very small quantity should be used otherwise there will be much irritation. This ointment is preferably applied at the end of the

treatment and before the commencement of the first few sexual acts

(D) *Higher Sexual Centre in the Cerebrum*

Sexual rest for three to six months is essential in case of impotency. To soothe the irritated centre and remove all sexual desire bromide is pushed in dose of 10-15 grain three times daily for a month or two during the first part of treatment.

When we are sure that the sexual centres have fully recuperated we stop bromide and administer sexual stimulants. So, in the latter part of the treatment strychnine sulphate or preferably nitrate is the medicine of choice. It is given in dose of $\frac{1}{30}$ grain daily continued for one week and then stopped for the next week and thus repeated for several weeks. Very often the compound syrup of hypophosphites or glycerophosphates acts more quickly and more beneficially than strychnine alone.

In neurasthenic cases, suggestion plays a very important part and must never be overlooked or avoided though it taxes much upon the patience of the doctor.

(E) *Organotherapy*.

It has been decidedly proved that internal secretions of endocrine glands, e g, testicle, thyroid, suprarenal and pituitary have a marked influence on the sexual life, a feeling of well-being and general health of the males. For this reason, various preparations have been placed in the market. I have used many of them but unfortunately the result was on the whole not very satisfactory.

(F) *Other Associated Diseases*:

Indigestion and constipation are commonly present in these cases. These troubles must be removed by proper digestive treatment otherwise the progress of improvement will be greatly

hampered. Elixir peptenzyme with Angier's emulsion is sometimes effective in these cases.

By way of conclusion it may be mentioned here that the treatment of impotency mainly consists of—(1) gentle massage and alternate application of heat and cold to the prostate and seminal vesicles, (2) operative urethroscopy for verumontanum, (3) diathermy and stimulating ointment for spinal cord, (4) faradic current on weak muscles of penis and perineum, (5) bromide and strychnine for higher sexual centre, (6) glandular preparation and tonics for general health, (7) digestive medicines for indigestion and constipation and (8) proper treatment for other associated diseases, if any. Impotency due to excessive coitus, too much masturbation, coitus interruptus and ungratified sexual desire has the same pathology and almost same line of treatment.

CHAPTER XIV

MODERN TREATMENT OF GONOCOCCAL INFECTION

FEMALES

"To what an appalling degree women are made innocent victims of this infection cannot be estimated."

"More than 60 per cent of all gynæcologic surgical operations of to-day are the direct or indirect result of gonococcal infection and that gonorrhœa has ruined the generative power of women more than all other diseases combined (Sturmdorf)."

Doctors may be held more responsible for this unfortunate state of affairs than the party concerned. It is due to the fact that—

(1) We do not think it a part of our duty to impress into the mind of the patient that disappearance of pain and lessening of discharge are no cure If he enters upon wedlock at this stage he is

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* P 20 Introduction—Gonococcal Infection in the male—by Wolbarst

sure to give his young wife in exchange of her virginity a poison which may cripple her and make her life miserable.

(2) If the patient happens to be a married man and there is any history of his wife being exposed to the infection of her husband it will be a great blunder on the part of the doctor to concentrate all his attention to the male member only and not to take his wife seriously into consideration at the same time. None is cured unless both are cured at the same time, otherwise there is every chance of relapse however carefully one is treated and certified as cured. I generally do not take up any case unless the infected partner is treated simultaneously.

(3) To avoid an error, special attention must be paid to the correct diagnosis of these female cases. The history of the female patients generally gives little assistance in actual diagnosis of the disease. She may be in ignorance of her infectious condition and remain without symptoms or inconvenience to

herself for a long period. Slight white discharge generally after menstruation may be the only symptom present. Females know it as leucorrhœa and totally ignore it as a simple disease, common to all the females more or less

* But "Leucorrhœa or a white discharge must not be taken as a normal condition in any case."

The discharge must be examined microscopically and culturally. For examination the specimen should be collected from the cervical canal by means of a sterile swab after a provocative vaccine injection.

TREATMENT

† "Due to the racemose structure of the endocervical glands, the infection in this location is deep seated and does not respond readily to medication applied to the surface."

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* P 412 Diagnosis and Treatment of Venereal Diseases by David Lees

† P. 250 Text Book of Urology by Eisendrath & Rolnick.

* "One of the common methods of treatment is the application of a caustic or germicide to the urethra and cervical canal with a dressed probe or syringe twice a week, the usual solution being silver nitrate, iodized phenol, picric acid, mercurochrome or one of the flavin series.

These methods retard drainage, impede leucocytosis and act as a barrier to the secretions behind and should be avoided.

The cervical glands reach a depth of at least $\frac{1}{4}$ inch. Experiments carried out by myself have shown that these drugs do not penetrate more than $\frac{1}{16}$ inch beneath the mucous surface of the cervical canal. The treatment above mentioned causes the formation of a dense layer of necrotic epithelium and tissue debris behind which the gonococcal and pyogenic organisms are hidden in a

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* P 165. Treatment of Venereal Diseases in general practice by Thomas Anwyl Davis

perfect culture medium, where they tend to spread into deeper tissue."

* "Chronic endocervicitis is notoriously resistant to topical applications, irrigations heretofore employed and offers a grateful field for electrotherapy. Both *diathermy* and *ionic medication* are being successfully employed and exert their effect either by chemical penetration into the depth of the diseased mucous membrane or by its destruction"

In my clinic, with the help of a trained nurse many female cases have been treated successfully by the method of ionization and diathermy, special technique of which has been described in detail under their respective chapters.

A short description of treatment in different stages of female gonorrhœa is given below:

* P. 581. Electrotherapy and Light Therapy by Richard Kovács, M D

Urethritis

Marked relief is obtained by the following methods (1) Bladder wash with alkaline permanganate solution, daily. (2) Alkaline mixture, making the irritating acid urine alkaline. (3) Diathermy to urethral canal by special urethral electrode. (4) Injection of Aolan or Gono Yatrin or both given alternately.

Endocervicitis·

Medical diathermy, alternated with silver or zinc ionization should be tried first. In very obstinate case, if the above methods fail, electro-coagulation of the cervical canal will cure the case without fail.

Ulceration of Vagina·

Constant discharge of irritating pus from the cervix sometimes erodes the mucous surface of the vaginal wall particularly the Labium It causes severe burning sensation, especially when urine comes in contact with these ulcerated areas.

In this stage, great benefit is obtained by hot hip bath and by the application of a lint soaked in the lotion consisting of Liq. Plumbi Fortis ʒi, Spt Rectified ʒii, Glycerin ʒi and Aqua add ℥iv. It acts as a sedative as well as an astringent.

Salpingitis

The most effective methods of treatment in this stage are (1) application of diathermy directly to the affected tube by the double plate method, (2) tampon soaked in Ichthyol Glycerin inserted into vaginal canal and pushed up to the cervix, (3) same injections of Aolan and gono-'yatren.'

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